

antagonist of the invention. A calibrated lens micrometer is used by a blinded observer to determine the distance of the wound gap.

Experimental data are analyzed using an unpaired t test. A p value of < 0.05 is considered significant.

5 The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 29: Lymphadema Animal Model

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The purpose of this experimental approach is to create an appropriate and consistent lymphedema model for testing the therapeutic effects of an agonist or antagonist of the invention in lymphangiogenesis and re-establishment of the lymphatic circulatory system in the rat hind limb. Effectiveness is measured by swelling volume of the affected limb, 15 quantification of the amount of lymphatic vasculature, total blood plasma protein, and histopathology. Acute lymphedema is observed for 7-10 days. Perhaps more importantly, the chronic progress of the edema is followed for up to 3-4 weeks.

Prior to beginning surgery, blood sample is drawn for protein concentration analysis. Male rats weighing approximately ~350g are dosed with Pentobarbital. Subsequently, the 20 right legs are shaved from knee to hip. The shaved area is swabbed with gauze soaked in 70% EtOH. Blood is drawn for serum total protein testing. Circumference and volumetric measurements are made prior to injecting dye into paws after marking 2 measurement levels (0.5 cm above heel, at mid-pt of dorsal paw). The intradermal dorsum of both right and left paws are injected with 0.05 ml of 1% Evan's Blue. Circumference and volumetric 25 measurements are then made following injection of dye into paws.

Using the knee joint as a landmark, a mid-leg inguinal incision is made circumferentially allowing the femoral vessels to be located. Forceps and hemostats are used to dissect and separate the skin flaps. After locating the femoral vessels, the lymphatic vessel that runs along side and underneath the vessel(s) is located. The main lymphatic vessels in 30 this area are then electrically coagulated or suture ligated.

Using a microscope, muscles in back of the leg (near the semitendinosus and adductors) are bluntly dissected. The popliteal lymph node is then located. The 2 proximal

and 2 distal lymphatic vessels and distal blood supply of the popliteal node are then and ligated by suturing. The popliteal lymph node, and any accompanying adipose tissue, is then removed by cutting connective tissues.

Care is taken to control any mild bleeding resulting from this procedure. After
5 lymphatics are occluded, the skin flaps are sealed by using liquid skin (Vetbond) (AJ Buck). The separated skin edges are sealed to the underlying muscle tissue while leaving a gap of ~0.5 cm around the leg. Skin also may be anchored by suturing to underlying muscle when necessary.

To avoid infection, animals are housed individually with mesh (no bedding).
10 Recovering animals are checked daily through the optimal edematous peak, which typically occurred by day 5-7. The plateau edematous peak are then observed. To evaluate the intensity of the lymphedema, the circumference and volumes of 2 designated places on each paw before operation and daily for 7 days are measured. The effect plasma proteins on lymphedema is determined and whether protein analysis is a useful testing perimeter is also
15 investigated. The weights of both control and edematous limbs are evaluated at 2 places. Analysis is performed in a blind manner.

Circumference Measurements: Under brief gas anesthetic to prevent limb movement, a cloth tape is used to measure limb circumference. Measurements are done at the ankle bone and dorsal paw by 2 different people then those 2 readings are averaged. Readings are
20 taken from both control and edematous limbs.

Volumetric Measurements: On the day of surgery, animals are anesthetized with Pentobarbital and are tested prior to surgery. For daily volumetrics animals are under brief halothane anesthetic (rapid immobilization and quick recovery), both legs are shaved and equally marked using waterproof marker on legs. Legs are first dipped in water, then dipped
25 into instrument to each marked level then measured by Buxco edema software(Chen/Victor). Data is recorded by one person, while the other is dipping the limb to marked area.

Blood-plasma protein measurements: Blood is drawn, spun, and serum separated prior to surgery and then at conclusion for total protein and Ca²⁺ comparison.

Limb Weight Comparison: After drawing blood, the animal is prepared for tissue
30 collection. The limbs are amputated using a quillitine, then both experimental and control legs are cut at the ligature and weighed. A second weighing is done as the tibio-cacaneal joint is disarticulated and the foot is weighed.

Histological Preparations: The transverse muscle located behind the knee (popliteal) area is dissected and arranged in a metal mold, filled with freezeGel, dipped into cold methylbutane, placed into labeled sample bags at - 80EC until sectioning. Upon sectioning, the muscle is observed under fluorescent microscopy for lymphatics..

- 5 The studies described in this example tested activity of agonists or antagonists of the invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

10 *Example 30: Suppression of TNF alpha-induced adhesion molecule expression by a Agonist or Antagonist of the Invention*

The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and
15 pathological settings, follows a multi-step cascade that involves intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the
20 local tissue during the development of an inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

- Tumor necrosis factor alpha (TNF-a), a potent proinflammatory cytokine, is a stimulator of all three CAMs on endothelial cells and may be involved in a wide variety of inflammatory responses, often resulting in a pathological outcome.
- 25 The potential of an agonist or antagonist of the invention to mediate a suppression of TNF-a induced CAM expression can be examined. A modified ELISA assay which uses ECs as a solid phase absorbent is employed to measure the amount of CAM expression on TNF-a treated ECs when co-stimulated with a member of the FGF family of proteins.

To perform the experiment, human umbilical vein endothelial cell (HUVEC) cultures
30 are obtained from pooled cord harvests and maintained in growth medium (EGM-2; Clonetics, San Diego, CA) supplemented with 10% FCS and 1% penicillin/streptomycin in a 37 degree C humidified incubator containing 5% CO₂. HUVECs are seeded in 96-well

plates at concentrations of 1×10^4 cells/well in EGM medium at 37 degree C for 18-24 hrs or until confluent. The monolayers are subsequently washed 3 times with a serum-free solution of RPMI-1640 supplemented with 100 U/ml penicillin and 100 mg/ml streptomycin, and treated with a given cytokine and/or growth factor(s) for 24 h at 37 degree C. Following
5 incubation, the cells are then evaluated for CAM expression.

Human Umbilical Vein Endothelial cells (HUVECs) are grown in a standard 96 well plate to confluence. Growth medium is removed from the cells and replaced with 90 ul of 199 Medium (10% FBS). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10 ul volumes). Plates are incubated at 37 degree C for either 5 h
10 (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100 μ l of 0.1% paraformaldehyde-PBS(with Ca^{++} and Mg^{++}) is added to each well. Plates are held at 4°C for 30 min.

Fixative is then removed from the wells and wells are washed 1X with PBS(+Ca,Mg)+0.5% BSA and drained. Do not allow the wells to dry. Add 10 μ l of diluted
15 primary antibody to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10 μ g/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA.

Then add 20 μ l of diluted ExtrAvidin-Alkaline Phosphatase (1:5,000 dilution) to each
20 well and incubated at 37°C for 30 min. Wells are washed X3 with PBS(+Ca,Mg)+0.5% BSA. 1 tablet of p-Nitrophenol Phosphate pNPP is dissolved in 5 ml of glycine buffer (pH 10.4). 100 μ l of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphatase in glycine buffer: $1:5,000$ (10^0) $> 10^{-0.5} > 10^{-1} > 10^{-1.5}$. 5 μ l of each dilution is added to triplicate
25 wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 μ l of pNPP reagent must then be added to each of the standard wells. The plate must be incubated at 37°C for 4h. A volume of 50 μ l of 3M NaOH is added to all wells. The results are quantified on a plate reader at 405 nm. The background subtraction option is used on blank wells filled with glycine buffer only. The template is set up to indicate the
30 concentration of AP-conjugate in each standard well [5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

The studies described in this example tested activity of agonists or antagonists of the

invention. However, one skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides or polypeptides of the invention (e.g., gene therapy).

Example 31: Production Of Polypeptide of the Invention For High-Throughput Screening Assays

The following protocol produces a supernatant containing polypeptide of the present invention to be tested. This supernatant can then be used in the Screening Assays described in Examples 33-42.

10 First, dilute Poly-D-Lysine (644 587 Boehringer-Mannheim) stock solution (1mg/ml in PBS) 1:20 in PBS (w/o calcium or magnesium 17-516F Biowhittaker) for a working solution of 50ug/ml. Add 200 ul of this solution to each well (24 well plates) and incubate at RT for 20 minutes. Be sure to distribute the solution over each well (note: a 12-channel pipetter may be used with tips on every other channel). Aspirate off the Poly-D-Lysine
15 solution and rinse with 1ml PBS (Phosphate Buffered Saline). The PBS should remain in the well until just prior to plating the cells and plates may be poly-lysine coated in advance for up to two weeks.

Plate 293T cells (do not carry cells past P+20) at 2×10^5 cells/well in .5ml DMEM(Dulbecco's Modified Eagle Medium)(with 4.5 G/L glucose and L-glutamine (12-
20 604F Biowhittaker))/10% heat inactivated FBS(14-503F Biowhittaker)/1x Penstrep(17-602E Biowhittaker). Let the cells grow overnight.

The next day, mix together in a sterile solution basin: 300 ul Lipofectamine (18324-012 Gibco/BRL) and 5ml Optimem I (31985070 Gibco/BRL)/96-well plate. With a small volume multi-channel pipetter, aliquot approximately 2ug of an expression vector containing
25 a polynucleotide insert, produced by the methods described in Examples 8-10, into an appropriately labeled 96-well round bottom plate. With a multi-channel pipetter, add 50ul of the Lipofectamine/Optimem I mixture to each well. Pipette up and down gently to mix. Incubate at RT 15-45 minutes. After about 20 minutes, use a multi-channel pipetter to add 150ul Optimem I to each well. As a control, one plate of vector DNA lacking an insert
30 should be transfected with each set of transfections.

Preferably, the transfection should be performed by tag-teaming the following tasks. By tag-teaming, hands on time is cut in half, and the cells do not spend too much time on

PBS. First, person A aspirates off the media from four 24-well plates of cells, and then person B rinses each well with .5-1ml PBS. Person A then aspirates off PBS rinse, and person B, using a 12-channel pipetter with tips on every other channel, adds the 200ul of DNA/Lipofectamine/Optimem I complex to the odd wells first, then to the even wells, to
 5 each row on the 24-well plates. Incubate at 37 degree C for 6 hours.

While cells are incubating, prepare appropriate media, either 1%BSA in DMEM with 1x penstrep, or HGS CHO-5 media (116.6 mg/L of CaCl₂ (anhyd); 0.00130 mg/L CuSO₄-5H₂O; 0.050 mg/L of Fe(NO₃)₃-9H₂O; 0.417 mg/L of FeSO₄-7H₂O; 311.80 mg/L of Kcl; 28.64 mg/L of MgCl₂; 48.84 mg/L of MgSO₄; 6995.50 mg/L of NaCl; 2400.0 mg/L of
 10 NaHCO₃; 62.50 mg/L of NaH₂PO₄-H₂O; 71.02 mg/L of Na₂HPO₄; .4320 mg/L of ZnSO₄-7H₂O; .002 mg/L of Arachidonic Acid ; 1.022 mg/L of Cholesterol; .070 mg/L of DL-alpha-Tocopherol-Acetate; 0.0520 mg/L of Linoleic Acid; 0.010 mg/L of Linolenic Acid; 0.010 mg/L of Myristic Acid; 0.010 mg/L of Oleic Acid; 0.010 mg/L of Palmitric Acid; 0.010 mg/L of Palmitic Acid; 100 mg/L of Pluronic F-68; 0.010 mg/L of Stearic Acid; 2.20 mg/L of
 15 Tween 80; 4551 mg/L of D-Glucose; 130.85 mg/ml of L- Alanine; 147.50 mg/ml of L- Arginine-HCL; 7.50 mg/ml of L-Asparagine-H₂O; 6.65 mg/ml of L-Aspartic Acid; 29.56 mg/ml of L-Cystine-2HCL-H₂O; 31.29 mg/ml of L-Cystine-2HCL; 7.35 mg/ml of L- Glutamic Acid; 365.0 mg/ml of L-Glutamine; 18.75 mg/ml of Glycine; 52.48 mg/ml of L- Histidine-HCL-H₂O; 106.97 mg/ml of L-Isoleucine; 111.45 mg/ml of L-Leucine; 163.75
 20 mg/ml of L-Lysine HCL; 32.34 mg/ml of L-Methionine; 68.48 mg/ml of L-Phenylalanine; 40.0 mg/ml of L-Proline; 26.25 mg/ml of L-Serine; 101.05 mg/ml of L-Threonine; 19.22 mg/ml of L-Tryptophan; 91.79 mg/ml of L-Tyrosine-2Na-2H₂O; and 99.65 mg/ml of L- Valine; 0.0035 mg/L of Biotin; 3.24 mg/L of D-Ca Pantothenate; 11.78 mg/L of Choline Chloride; 4.65 mg/L of Folic Acid; 15.60 mg/L of i-Inositol; 3.02 mg/L of Niacinamide; 3.00
 25 mg/L of Pyridoxal HCL; 0.031 mg/L of Pyridoxine HCL; 0.319 mg/L of Riboflavin; 3.17 mg/L of Thiamine HCL; 0.365 mg/L of Thymidine; 0.680 mg/L of Vitamin B₁₂; 25 mM of HEPES Buffer; 2.39 mg/L of Na Hypoxanthine; 0.105 mg/L of Lipoic Acid; 0.081 mg/L of Sodium Putrescine-2HCL; 55.0 mg/L of Sodium Pyruvate; 0.0067 mg/L of Sodium Selenite; 20uM of Ethanolamine; 0.122 mg/L of Ferric Citrate; 41.70 mg/L of Methyl-B-Cyclodextrin
 30 complexed with Linoleic Acid; 33.33 mg/L of Methyl-B-Cyclodextrin complexed with Oleic Acid; 10 mg/L of Methyl-B-Cyclodextrin complexed with Retinal Acetate. Adjust

osmolarity to 327 mOsm) with 2mm glutamine and 1x penstrep. (BSA (81-068-3 Bayer) 100gm dissolved in 1L DMEM for a 10% BSA stock solution). Filter the media and collect 50 ul for endotoxin assay in 15ml polystyrene conical.

5 The transfection reaction is terminated, preferably by tag-teaming, at the end of the incubation period. Person A aspirates off the transfection media, while person B adds 1.5ml appropriate media to each well. Incubate at 37 degree C for 45 or 72 hours depending on the media used: 1%BSA for 45 hours or CHO-5 for 72 hours.

10 On day four, using a 300ul multichannel pipetter, aliquot 600ul in one 1ml deep well plate and the remaining supernatant into a 2ml deep well. The supernatants from each well can then be used in the assays described in Examples 33-40.

It is specifically understood that when activity is obtained in any of the assays described below using a supernatant, the activity originates from either the polypeptide of the present invention directly (e.g., as a secreted protein) or by polypeptide of the present invention inducing expression of other proteins, which are then secreted into the supernatant.
15 Thus, the invention further provides a method of identifying the protein in the supernatant characterized by an activity in a particular assay.

Example 32: Construction of GAS Reporter Construct

20 One signal transduction pathway involved in the differentiation and proliferation of cells is called the Jaks-STATs pathway. Activated proteins in the Jaks-STATs pathway bind to gamma activation site "GAS" elements or interferon-sensitive responsive element ("ISRE"), located in the promoter of many genes. The binding of a protein to these elements alter the expression of the associated gene.

25 GAS and ISRE elements are recognized by a class of transcription factors called Signal Transducers and Activators of Transcription, or "STATs." There are six members of the STATs family. Stat1 and Stat3 are present in many cell types, as is Stat2 (as response to IFN-alpha is widespread). Stat4 is more restricted and is not in many cell types though it has been found in T helper class I, cells after treatment with IL-12. Stat5 was originally called
30 mammary growth factor, but has been found at higher concentrations in other cells including myeloid cells. It can be activated in tissue culture cells by many cytokines.

The STATs are activated to translocate from the cytoplasm to the nucleus upon

tyrosine phosphorylation by a set of kinases known as the Janus Kinase ("Jaks") family. Jaks represent a distinct family of soluble tyrosine kinases and include Tyk2, Jak1, Jak2, and Jak3. These kinases display significant sequence similarity and are generally catalytically inactive in resting cells.

5 The Jaks are activated by a wide range of receptors summarized in the Table below. (Adapted from review by Schidler and Darnell, *Ann. Rev. Biochem.* 64:621-51 (1995).) A cytokine receptor family, capable of activating Jaks, is divided into two groups: (a) Class 1 includes receptors for IL-2, IL-3, IL-4, IL-6, IL-7, IL-9, IL-11, IL-12, IL-15, Epo, PRL, GH, G-CSF, GM-CSF, LIF, CNTF, and thrombopoietin; and (b) Class 2 includes IFN-a, IFN-g,
10 and IL-10. The Class 1 receptors share a conserved cysteine motif (a set of four conserved cysteines and one tryptophan) and a WSXWS motif (a membrane proximal region encoding Trp-Ser-Xxx-Trp-Ser (SEQ ID NO:1686)).

 Thus, on binding of a ligand to a receptor, Jaks are activated, which in turn activate STATs, which then translocate and bind to GAS elements. This entire process is
15 encompassed in the Jaks-STATs signal transduction pathway.

 Therefore, activation of the Jaks-STATs pathway, reflected by the binding of the GAS or the ISRE element, can be used to indicate proteins involved in the proliferation and differentiation of cells. For example, growth factors and cytokines are known to activate the Jaks-STATs pathway. (See Table below.) Thus, by using GAS elements linked to reporter
20 molecules, activators of the Jaks-STATs pathway can be identified.

	<u>Ligand</u>	<u>JAKs</u>				<u>STATS GAS(elements) or ISRE</u>	
		<u>tyk2</u>	<u>Jak1</u>	<u>Jak2</u>	<u>Jak3</u>		
	<u>IFN family</u>						
5	IFN-a/B	+	+	-	-	1,2,3	ISRE
	IFN-g		+	+	-	1	GAS
	(IRF1>Lys6>IFP)						
	IL-10	+	?	?	-	1,3	
10	<u>gp130 family</u>						
	IL-6 (Pleiotrohic)	+	+	+	?	1,3	GAS
	(IRF1>Lys6>IFP)						
	IL-11(Pleiotrohic)	?	+	?	?	1,3	
	OnM(Pleiotrohic)	?	+	+	?	1,3	
15	LIF(Pleiotrohic)	?	+	+	?	1,3	
	CNTF(Pleiotrohic)	-/+	+	+	?	1,3	
	G-CSF(Pleiotrohic)	?	+	?	?	1,3	
	IL-12(Pleiotrohic)	+	-	+	+	1,3	
20	<u>g-C family</u>						
	IL-2 (lymphocytes)	-	+	-	+	1,3,5	GAS
	IL-4 (lymph/myeloid)	-	+	-	+	6	GAS (IRF1 = IFP
	>>Ly6)(IgH)						
	IL-7 (lymphocytes)	-	+	-	+	5	GAS
25	IL-9 (lymphocytes)	-	+	-	+	5	GAS
	IL-13 (lymphocyte)	-	+	?	?	6	GAS
	IL-15	?	+	?	+	5	GAS
	<u>gp140 family</u>						
30	IL-3 (myeloid)	-	-	+	-	5	GAS
	(IRF1>IFP>>Ly6)						
	IL-5 (myeloid)	-	-	+	-	5	GAS
	GM-CSF (myeloid)	-	-	+	-	5	GAS

510

Growth hormone family

	GH	?	-	+	-	5	
	PRL	?	+/-	+	-	1,3,5	
5	EPO	?	-	+	-	5	GAS(B-
	CAS>IRF1=IFP>>Ly6)						

Receptor Tyrosine Kinases

10	EGF	?	+	+	-	1,3	GAS (IRF1)
	PDGF	?	+	+	-	1,3	
	CSF-1	?	+	+	-	1,3	GAS (not IRF1)

To construct a synthetic GAS containing promoter element, which is used in the Biological Assays described in Examples 33-34, a PCR based strategy is employed to generate a GAS-SV40 promoter sequence. The 5' primer contains four tandem copies of the GAS binding site found in the IRF1 promoter and previously demonstrated to bind STATs upon induction with a range of cytokines (Rothman et al., Immunity 1:457-468 (1994).), although other GAS or ISRE elements can be used instead. The 5' primer also contains 18bp of sequence complementary to the SV40 early promoter sequence and is flanked with an XhoI site. The sequence of the 5' primer is:

10 5':GCGCCTCGAGATTTCCTCCCGAAATCTAGATTTCCTCCCGAAATGATTTCCTCCCGAAATGATTTCCTCCCGAAATATCTGCCATCTCAATTAG:3' (SEQ ID NO:1687)

The downstream primer is complementary to the SV40 promoter and is flanked with a Hind III site: 5':GCGGCAAGCTTTTTGCAAAGCCTAGGC:3' (SEQ ID NO:1688)

15 PCR amplification is performed using the SV40 promoter template present in the B-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is digested with XhoI/Hind III and subcloned into BLSK2-. (Stratagene.) Sequencing with forward and reverse primers confirms that the insert contains the following sequence:

20 5':CTCGAGATTTCCTCCCGAAATCTAGATTTCCTCCCGAAATGATTTCCTCCCGAAATGATTTCCTCCCGAAATATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCTAACTCCGCCCATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTA
25 GGCTTTTGCAAAAAGCTT:3' (SEQ ID NO:1689)

With this GAS promoter element linked to the SV40 promoter, a GAS:SEAP2 reporter construct is next engineered. Here, the reporter molecule is a secreted alkaline phosphatase, or "SEAP." Clearly, however, any reporter molecule can be instead of SEAP, in this or in any of the other Examples. Well known reporter molecules that can be used instead of SEAP include chloramphenicol

30

acetyltransferase (CAT), luciferase, alkaline phosphatase, B-galactosidase, green fluorescent protein (GFP), or any protein detectable by an antibody.

The above sequence confirmed synthetic GAS-SV40 promoter element is subcloned into the pSEAP-Promoter vector obtained from Clontech using HindIII and
5 XhoI, effectively replacing the SV40 promoter with the amplified GAS:SV40 promoter element, to create the GAS-SEAP vector. However, this vector does not contain a neomycin resistance gene, and therefore, is not preferred for mammalian expression systems.

Thus, in order to generate mammalian stable cell lines expressing the GAS-
10 SEAP reporter, the GAS-SEAP cassette is removed from the GAS-SEAP vector using SalI and NotI, and inserted into a backbone vector containing the neomycin resistance gene, such as pGFP-1 (Clontech), using these restriction sites in the multiple cloning site, to create the GAS-SEAP/Neo vector. Once this vector is transfected into mammalian cells, this vector can then be used as a reporter molecule for GAS binding
15 as described in Examples 33-34.

Other constructs can be made using the above description and replacing GAS with a different promoter sequence. For example, construction of reporter molecules containing NFK-B and EGR promoter sequences are described in Examples 35 and 36. However, many other promoters can be substituted using the protocols described
20 in these Examples. For instance, SRE, IL-2, NFAT, or Osteocalcin promoters can be substituted, alone or in combination (e.g., GAS/NF-KB/EGR, GAS/NF-KB, IL-2/NFAT, or NF-KB/GAS). Similarly, other cell lines can be used to test reporter construct activity, such as HELA (epithelial), HUVEC (endothelial), Reh (B-cell), Saos-2 (osteoblast), HUVAC (aortic), or Cardiomyocyte.

25

Example 33: High-Throughput Screening Assay for T-cell Activity.

The following protocol is used to assess T-cell activity by identifying factors, and determining whether supernate containing a polypeptide of the invention
30 proliferates and/or differentiates T-cells. T-cell activity is assessed using the

GAS/SEAP/Neo construct produced in Example 32. Thus, factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The T-cell used in this assay is Jurkat T-cells (ATCC Accession No. TIB-152), although Molt-3 cells (ATCC Accession No. CRL-1552) and Molt-4 cells (ATCC
5 Accession No. CRL-1582) cells can also be used.

Jurkat T-cells are lymphoblastic CD4+ Th1 helper cells. In order to generate stable cell lines, approximately 2 million Jurkat cells are transfected with the GAS-SEAP/neo vector using DMRIE-C (Life Technologies)(transfection procedure described below). The transfected cells are seeded to a density of approximately
10 20,000 cells per well and transfectants resistant to 1 mg/ml gentamicin selected. Resistant colonies are expanded and then tested for their response to increasing concentrations of interferon gamma. The dose response of a selected clone is demonstrated.

Specifically, the following protocol will yield sufficient cells for 75 wells
15 containing 200 ul of cells. Thus, it is either scaled up, or performed in multiple to generate sufficient cells for multiple 96 well plates. Jurkat cells are maintained in RPMI + 10% serum with 1%Pen-Strep. Combine 2.5 mls of OPTI-MEM (Life Technologies) with 10 ug of plasmid DNA in a T25 flask. Add 2.5 ml OPTI-MEM containing 50 ul of DMRIE-C and incubate at room temperature for 15-45 mins.

20 During the incubation period, count cell concentration, spin down the required number of cells (10^7 per transfection), and resuspend in OPTI-MEM to a final concentration of 10^7 cells/ml. Then add 1ml of 1×10^7 cells in OPTI-MEM to T25 flask and incubate at 37 degree C for 6 hrs. After the incubation, add 10 ml of RPMI + 15% serum.

25 The Jurkat:GAS-SEAP stable reporter lines are maintained in RPMI + 10% serum, 1 mg/ml Gentamicin, and 1% Pen-Strep. These cells are treated with supernatants containing polypeptide of the present invention or polypeptide of the present invention induced polypeptides as produced by the protocol described in Example 31.

30 On the day of treatment with the supernatant, the cells should be washed and

resuspended in fresh RPMI + 10% serum to a density of 500,000 cells per ml. The exact number of cells required will depend on the number of supernatants being screened. For one 96 well plate, approximately 10 million cells (for 10 plates, 100 million cells) are required.

5 Transfer the cells to a triangular reservoir boat, in order to dispense the cells into a 96 well dish, using a 12 channel pipette. Using a 12 channel pipette, transfer 200 ul of cells into each well (therefore adding 100, 000 cells per well).

 After all the plates have been seeded, 50 ul of the supernatants are transferred directly from the 96 well plate containing the supernatants into each well using a 12
10 channel pipette. In addition, a dose of exogenous interferon gamma (0.1, 1.0, 10 ng) is added to wells H9, H10, and H11 to serve as additional positive controls for the assay.

 The 96 well dishes containing Jurkat cells treated with supernatants are placed in an incubator for 48 hrs (note: this time is variable between 48-72 hrs). 35 ul
15 samples from each well are then transferred to an opaque 96 well plate using a 12 channel pipette. The opaque plates should be covered (using sellophene covers) and stored at -20 degree C until SEAP assays are performed according to Example 37. The plates containing the remaining treated cells are placed at 4 degree C and serve as a source of material for repeating the assay on a specific well if desired.

20 As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate Jurkat T cells. Over 30 fold induction is typically observed in the positive control wells.

 The above protocol may be used in the generation of both transient, as well as, stable transfected cells, which would be apparent to those of skill in the art.

25

Example 34: High-Throughput Screening Assay Identifying Myeloid Activity

 The following protocol is used to assess myeloid activity of polypeptide of the present invention by determining whether polypeptide of the present invention
30 proliferates and/or differentiates myeloid cells. Myeloid cell activity is assessed using

the GAS/SEAP/Neo construct produced in Example 32. Thus, factors that increase SEAP activity indicate the ability to activate the Jaks-STATS signal transduction pathway. The myeloid cell used in this assay is U937, a pre-monocyte cell line, although TF-1, HL60, or KG1 can be used.

- 5 To transiently transfect U937 cells with the GAS/SEAP/Neo construct produced in Example 32, a DEAE-Dextran method (Kharbanda et. al., 1994, Cell Growth & Differentiation, 5:259-265) is used. First, harvest 2×10^7 U937 cells and wash with PBS. The U937 cells are usually grown in RPMI 1640 medium containing 10% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml
10 penicillin and 100 mg/ml streptomycin.

Next, suspend the cells in 1 ml of 20 mM Tris-HCl (pH 7.4) buffer containing 0.5 mg/ml DEAE-Dextran, 8 ug GAS-SEAP2 plasmid DNA, 140 mM NaCl, 5 mM KCl, 375 uM $\text{Na}_2\text{HPO}_4 \cdot 7\text{H}_2\text{O}$, 1 mM MgCl_2 , and 675 uM CaCl_2 . Incubate at 37 degrees C for 45 min.

- 15 Wash the cells with RPMI 1640 medium containing 10% FBS and then resuspend in 10 ml complete medium and incubate at 37 degree C for 36 hr.

The GAS-SEAP/U937 stable cells are obtained by growing the cells in 400 ug/ml G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 400 ug/ml G418 for couple of passages.

- 20 These cells are tested by harvesting 1×10^8 cells (this is enough for ten 96-well plates assay) and wash with PBS. Suspend the cells in 200 ml above described growth medium, with a final density of 5×10^5 cells/ml. Plate 200 ul cells per well in the 96-well plate (or 1×10^5 cells/well).

- Add 50 ul of the supernatant prepared by the protocol described in Example
25 31. Incubate at 37 degree C for 48 to 72 hr. As a positive control, 100 Unit/ml interferon gamma can be used which is known to activate U937 cells. Over 30 fold induction is typically observed in the positive control wells. SEAP assay the supernatant according to the protocol described in Example 37.

- 30 *Example 35: High-Throughput Screening Assay Identifying Neuronal Activity.*

When cells undergo differentiation and proliferation, a group of genes are activated through many different signal transduction pathways. One of these genes, EGR1 (early growth response gene 1), is induced in various tissues and cell types upon activation. The promoter of EGR1 is responsible for such induction. Using the EGR1 promoter linked to reporter molecules, activation of cells can be assessed by polypeptide of the present invention.

Particularly, the following protocol is used to assess neuronal activity in PC12 cell lines. PC12 cells (rat pheochromocytoma cells) are known to proliferate and/or differentiate by activation with a number of mitogens, such as TPA (tetradecanoyl phorbol acetate), NGF (nerve growth factor), and EGF (epidermal growth factor). The EGR1 gene expression is activated during this treatment. Thus, by stably transfecting PC12 cells with a construct containing an EGR promoter linked to SEAP reporter, activation of PC12 cells by polypeptide of the present invention can be assessed.

The EGR/SEAP reporter construct can be assembled by the following protocol. The EGR-1 promoter sequence (-633 to +1)(Sakamoto K et al., Oncogene 6:867-871 (1991)) can be PCR amplified from human genomic DNA using the following primers:

5' GCGCTCGAGGGATGACAGCGATAGAACCCCGG -3' (SEQ ID NO: 1690)

5' GCGAAGCTTCGCGACTCCCCGGATCCGCCTC-3' (SEQ ID NO: 1691)

Using the GAS:SEAP/Neo vector produced in Example 32, EGR1 amplified product can then be inserted into this vector. Linearize the GAS:SEAP/Neo vector using restriction enzymes XhoI/HindIII, removing the GAS/SV40 stuffer. Restrict the EGR1 amplified product with these same enzymes. Ligate the vector and the EGR1 promoter.

To prepare 96 well-plates for cell culture, two mls of a coating solution (1:30 dilution of collagen type I (Upstate Biotech Inc. Cat#08-115) in 30% ethanol (filter

sterilized)) is added per one 10 cm plate or 50 ml per well of the 96-well plate, and allowed to air dry for 2 hr.

PC12 cells are routinely grown in RPMI-1640 medium (Bio Whittaker) containing 10% horse serum (JRH BIOSCIENCES, Cat. # 12449-78P), 5% heat-inactivated fetal bovine serum (FBS) supplemented with 100 units/ml penicillin and 100 ug/ml streptomycin on a precoated 10 cm tissue culture dish. One to four split is done every three to four days. Cells are removed from the plates by scraping and resuspended with pipetting up and down for more than 15 times.

Transfect the EGR/SEAP/Neo construct into PC12 using the Lipofectamine protocol described in Example 31. EGR-SEAP/PC12 stable cells are obtained by growing the cells in 300 ug/ml G418. The G418-free medium is used for routine growth but every one to two months, the cells should be re-grown in 300 ug/ml G418 for couple of passages.

To assay for neuronal activity, a 10 cm plate with cells around 70 to 80% confluent is screened by removing the old medium. Wash the cells once with PBS (Phosphate buffered saline). Then starve the cells in low serum medium (RPMI-1640 containing 1% horse serum and 0.5% FBS with antibiotics) overnight.

The next morning, remove the medium and wash the cells with PBS. Scrape off the cells from the plate, suspend the cells well in 2 ml low serum medium. Count the cell number and add more low serum medium to reach final cell density as 5×10^5 cells/ml.

Add 200 ul of the cell suspension to each well of 96-well plate (equivalent to 1×10^5 cells/well). Add 50 ul supernatant produced by Example 31, 37 degree C for 48 to 72 hr. As a positive control, a growth factor known to activate PC12 cells through EGR can be used, such as 50 ng/ul of Neuronal Growth Factor (NGF). Over fifty-fold induction of SEAP is typically seen in the positive control wells. SEAP assay the supernatant according to Example 37.

Example 36: High-Throughput Screening Assay for T-cell Activity

NF-KB (Nuclear Factor KB) is a transcription factor activated by a wide variety of agents including the inflammatory cytokines IL-1 and TNF, CD30 and CD40, lymphotoxin-alpha and lymphotoxin-beta, by exposure to LPS or thrombin, and by expression of certain viral gene products. As a transcription factor, NF-KB
5 regulates the expression of genes involved in immune cell activation, control of apoptosis (NF- KB appears to shield cells from apoptosis), B and T-cell development, anti-viral and antimicrobial responses, and multiple stress responses.

In non-stimulated conditions, NF- KB is retained in the cytoplasm with I-KB (Inhibitor KB). However, upon stimulation, I- KB is phosphorylated and degraded,
10 causing NF- KB to shuttle to the nucleus, thereby activating transcription of target genes. Target genes activated by NF- KB include IL-2, IL-6, GM-CSF, ICAM-1 and class I MHC.

Due to its central role and ability to respond to a range of stimuli, reporter constructs utilizing the NF-KB promoter element are used to screen the supernatants
15 produced in Example 31. Activators or inhibitors of NF-KB would be useful in treating, preventing, and/or diagnosing diseases. For example, inhibitors of NF-KB could be used to treat those diseases related to the acute or chronic activation of NF-KB, such as rheumatoid arthritis.

To construct a vector containing the NF-KB promoter element, a PCR based
20 strategy is employed. The upstream primer contains four tandem copies of the NF-KB binding site (GGGGACTTTCCC) (SEQ ID NO:1692), 18 bp of sequence complementary to the 5' end of the SV40 early promoter sequence, and is flanked with an XhoI site:

5':GCGGCCTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGAC
25 TTTCCATCCTGCCATCTCAATTAG:3' (SEQ ID NO:1693)

The downstream primer is complementary to the 3' end of the SV40 promoter and is flanked with a Hind III site:

5':GCGGCAAGCTTTTGTCAAAGCCTAGGC:3' (SEQ ID NO:1688)

PCR amplification is performed using the SV40 promoter template present in
30 the pB-gal:promoter plasmid obtained from Clontech. The resulting PCR fragment is

digested with XhoI and Hind III and subcloned into BLSK2-. (Stratagene)
Sequencing with the T7 and T3 primers confirms the insert contains the following
sequence:

5':CTCGAGGGGACTTTCCCGGGGACTTTCCGGGGACTTTCCGGGACTTTCC
5 ATCTGCCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCTAACTCCGCCC
ATCCCGCCCCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGA
CTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTA
TTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGCAAAAA
GCTT:3' (SEQ ID NO:1694)

10 Next, replace the SV40 minimal promoter element present in the pSEAP2-
promoter plasmid (Clontech) with this NF-KB/SV40 fragment using XhoI and
HindIII. However, this vector does not contain a neomycin resistance gene, and
therefore, is not preferred for mammalian expression systems.

In order to generate stable mammalian cell lines, the NF-KB/SV40/SEAP
15 cassette is removed from the above NF-KB/SEAP vector using restriction enzymes
Sall and NotI, and inserted into a vector containing neomycin resistance. Particularly,
the NF-KB/SV40/SEAP cassette was inserted into pGFP-1 (Clontech), replacing the
GFP gene, after restricting pGFP-1 with Sall and NotI.

Once NF-KB/SV40/SEAP/Neo vector is created, stable Jurkat T-cells are
20 created and maintained according to the protocol described in Example 33. Similarly,
the method for assaying supernatants with these stable Jurkat T-cells is also described
in Example 33. As a positive control, exogenous TNF alpha (0.1, 1, 10 ng) is added to
wells H9, H10, and H11, with a 5-10 fold activation typically observed.

25 *Example 37: Assay for SEAP Activity*

As a reporter molecule for the assays described in Examples 33-36, SEAP
activity is assayed using the Tropix Phospho-light Kit (Cat. BP-400) according to the
following general procedure. The Tropix Phospho-light Kit supplies the Dilution,
30 Assay, and Reaction Buffers used below.

Prime a dispenser with the 2.5x Dilution Buffer and dispense 15 ul of 2.5x dilution buffer into Optiplates containing 35 ul of a supernatant. Seal the plates with a plastic sealer and incubate at 65 degree C for 30 min. Separate the Optiplates to avoid uneven heating.

- 5 Cool the samples to room temperature for 15 minutes. Empty the dispenser and prime with the Assay Buffer. Add 50 ml Assay Buffer and incubate at room temperature 5 min. Empty the dispenser and prime with the Reaction Buffer (see the table below).. Add 50 ul Reaction Buffer and incubate at room temperature for 20 minutes. Since the intensity of the chemiluminescent signal is time dependent, and it
- 10 takes about 10 minutes to read 5 plates on luminometer, one should treat 5 plates at each time and start the second set 10 minutes later.

Read the relative light unit in the luminometer. Set H12 as blank, and print the results. An increase in chemiluminescence indicates reporter activity.

15 Reaction Buffer Formulation:

# of plates	Rxn buffer diluent (ml)	CSPD (ml)
10	60	3
11	65	3.25
12	70	3.5
13	75	3.75
14	80	4
15	85	4.25
16	90	4.5
17	95	4.75
18	100	5
19	105	5.25
20	110	5.5
21	115	5.75
22	120	6

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23	125	6.25
24	130	6.5
25	135	6.75
26	140	7
27	145	7.25
28	150	7.5
29	155	7.75
30	160	8
31	165	8.25
32	170	8.5
33	175	8.75
34	180	9
35	185	9.25
36	190	9.5
37	195	9.75
38	200	10
39	205	10.25
40	210	10.5
41	215	10.75
42	220	11
43	225	11.25
44	230	11.5
45	235	11.75
46	240	12
47	245	12.25
48	250	12.5
49	255	12.75
50	260	13

Example 38: High-Throughput Screening Assay Identifying Changes in Small

Molecule Concentration and Membrane Permeability

Binding of a ligand to a receptor is known to alter intracellular levels of small molecules, such as calcium, potassium, sodium, and pH, as well as alter membrane potential. These alterations can be measured in an assay to identify supernatants which bind to receptors of a particular cell. Although the following protocol describes an assay for calcium, this protocol can easily be modified to detect changes in potassium, sodium, pH, membrane potential, or any other small molecule which is detectable by a fluorescent probe.

10 The following assay uses Fluorometric Imaging Plate Reader ("FLIPR") to measure changes in fluorescent molecules (Molecular Probes) that bind small molecules. Clearly, any fluorescent molecule detecting a small molecule can be used instead of the calcium fluorescent molecule, fluo-4 (Molecular Probes, Inc.; catalog no. F-14202), used here.

15 For adherent cells, seed the cells at 10,000 -20,000 cells/well in a Co-star black 96-well plate with clear bottom. The plate is incubated in a CO₂ incubator for 20 hours. The adherent cells are washed two times in Biotek washer with 200 ul of HBSS (Hank's Balanced Salt Solution) leaving 100 ul of buffer after the final wash.

A stock solution of 1 mg/ml fluo-4 is made in 10% pluronic acid DMSO. To load the cells with fluo-4, 50 ul of 12 ug/ml fluo-4 is added to each well. The plate is incubated at 37 degrees C in a CO₂ incubator for 60 min. The plate is washed four times in the Biotek washer with HBSS leaving 100 ul of buffer.

For non-adherent cells, the cells are spun down from culture media. Cells are re-suspended to $2-5 \times 10^6$ cells/ml with HBSS in a 50-ml conical tube. 4 ul of 1 mg/ml fluo-4 solution in 10% pluronic acid DMSO is added to each ml of cell suspension. The tube is then placed in a 37 degrees C water bath for 30-60 min. The cells are washed twice with HBSS, resuspended to 1×10^6 cells/ml, and dispensed into a microplate. 100 ul/well. The plate is centrifuged at 1000 rpm for 5 min. The plate is then washed once in Denley Cell Wash with 200 ul, followed by an aspiration step to 100 ul final volume.

For a non-cell based assay, each well contains a fluorescent molecule, such as fluo-4 . The supernatant is added to the well, and a change in fluorescence is detected.

To measure the fluorescence of intracellular calcium, the FLIPR is set for the
5 following parameters: (1) System gain is 300-800 mW; (2) Exposure time is 0.4
second; (3) Camera F/stop is F/2; (4) Excitation is 488 nm; (5) Emission is 530 nm;
and (6) Sample addition is 50 ul. Increased emission at 530 nm indicates an
extracellular signaling event caused by the a molecule, either polypeptide of the
present invention or a molecule induced by polypeptide of the present invention,
10 which has resulted in an increase in the intracellular Ca^{++} concentration.

Example 40: High-Throughput Screening Assay Identifying Tyrosine Kinase Activity

The Protein Tyrosine Kinases (PTK) represent a diverse group of
15 transmembrane and cytoplasmic kinases. Within the Receptor Protein Tyrosine
Kinase (RPTK) group are receptors for a range of mitogenic and metabolic growth
factors including the PDGF, FGF, EGF, NGF, HGF and Insulin receptor subfamilies.
In addition there are a large family of RPTKs for which the corresponding ligand is
unknown. Ligands for RPTKs include mainly secreted small proteins, but also
20 membrane-bound and extracellular matrix proteins.

Activation of RPTK by ligands involves ligand-mediated receptor
dimerization, resulting in transphosphorylation of the receptor subunits and activation
of the cytoplasmic tyrosine kinases. The cytoplasmic tyrosine kinases include
receptor associated tyrosine kinases of the src-family (e.g., src, yes, lck, lyn, fyn) and
25 non-receptor linked and cytosolic protein tyrosine kinases, such as the Jak family,
members of which mediate signal transduction triggered by the cytokine superfamily
of receptors (e.g., the Interleukins, Interferons, GM-CSF, and Leptin).

Because of the wide range of known factors capable of stimulating tyrosine
kinase activity, identifying whether polypeptide of the present invention or a molecule
30 induced by polypeptide of the present invention is capable of activating tyrosine

kinase signal transduction pathways is of interest. Therefore, the following protocol is designed to identify such molecules capable of activating the tyrosine kinase signal transduction pathways.

Seed target cells (e.g., primary keratinocytes) at a density of approximately
5 25,000 cells per well in a 96 well Loprodyne Silent Screen Plates purchased from
Nalge Nunc (Naperville, IL). The plates are sterilized with two 30 minute rinses with
100% ethanol, rinsed with water and dried overnight. Some plates are coated for 2 hr
with 100 ml of cell culture grade type I collagen (50 mg/ml), gelatin (2%) or
polylysine (50 mg/ml), all of which can be purchased from Sigma Chemicals (St.
10 Louis, MO) or 10% Matrigel purchased from Becton Dickinson (Bedford, MA), or
calf serum, rinsed with PBS and stored at 4 degree C. Cell growth on these plates is
assayed by seeding 5,000 cells/well in growth medium and indirect quantitation of
cell number through use of alamarBlue as described by the manufacturer Alamar
Biosciences, Inc. (Sacramento, CA) after 48 hr. Falcon plate covers #3071 from
15 Becton Dickinson (Bedford, MA) are used to cover the Loprodyne Silent Screen
Plates. Falcon Microtest III cell culture plates can also be used in some proliferation
experiments.

To prepare extracts, A431 cells are seeded onto the nylon membranes of
Loprodyne plates (20,000/200ml/well) and cultured overnight in complete medium.
20 Cells are quiesced by incubation in serum-free basal medium for 24 hr. After 5-20
minutes treatment with EGF (60ng/ml) or 50 ul of the supernatant produced in
Example 31, the medium was removed and 100 ml of extraction buffer ((20 mM
HEPES pH 7.5, 0.15 M NaCl, 1% Triton X-100, 0.1% SDS, 2 mM Na₃VO₄, 2 mM
Na₄P₂O₇ and a cocktail of protease inhibitors (# 1836170) obtained from
25 Boehringer Mannheim (Indianapolis, IN) is added to each well and the plate is
shaken on a rotating shaker for 5 minutes at 4°C. The plate is then placed in a
vacuum transfer manifold and the extract filtered through the 0.45 mm membrane
bottoms of each well using house vacuum. Extracts are collected in a 96-well
catch/assay plate in the bottom of the vacuum manifold and immediately placed on
30 ice. To obtain extracts clarified by centrifugation, the content of each well, after

detergent solubilization for 5 minutes, is removed and centrifuged for 15 minutes at 4 degree C at 16,000 x g.

Test the filtered extracts for levels of tyrosine kinase activity. Although many methods of detecting tyrosine kinase activity are known, one method is described here.

Generally, the tyrosine kinase activity of a supernatant is evaluated by determining its ability to phosphorylate a tyrosine residue on a specific substrate (a biotinylated peptide). Biotinylated peptides that can be used for this purpose include PSK1 (corresponding to amino acids 6-20 of the cell division kinase cdc2-p34) and PSK2 (corresponding to amino acids 1-17 of gastrin). Both peptides are substrates for a range of tyrosine kinases and are available from Boehringer Mannheim.

The tyrosine kinase reaction is set up by adding the following components in order. First, add 10ul of 5uM Biotinylated Peptide, then 10ul ATP/Mg₂⁺ (5mM ATP/50mM MgCl₂), then 10ul of 5x Assay Buffer (40mM imidazole hydrochloride, pH7.3, 40 mM beta-glycerophosphate, 1mM EGTA, 100mM MgCl₂, 5 mM MnCl₂, 0.5 mg/ml BSA), then 5ul of Sodium Vanadate(1mM), and then 5ul of water. Mix the components gently and preincubate the reaction mix at 30 degree C for 2 min. Initial the reaction by adding 10ul of the control enzyme or the filtered supernatant.

The tyrosine kinase assay reaction is then terminated by adding 10 ul of 120mM EDTA and place the reactions on ice.

Tyrosine kinase activity is determined by transferring 50 ul aliquot of reaction mixture to a microtiter plate (MTP) module and incubating at 37 degree C for 20 min. This allows the streptavidin coated 96 well plate to associate with the biotinylated peptide. Wash the MTP module with 300ul/well of PBS four times. Next add 75 ul of anti-phosphotyrosine antibody conjugated to horse radish peroxidase(anti-P-Tyr-POD(0.5u/ml)) to each well and incubate at 37 degree C for one hour. Wash the well as above.

Next add 100ul of peroxidase substrate solution (Boehringer Mannheim) and incubate at room temperature for at least 5 mins (up to 30 min). Measure the absorbance of the sample at 405 nm by using ELISA reader. The level of bound

peroxidase activity is quantitated using an ELISA reader and reflects the level of tyrosine kinase activity.

Example 41: High-Throughput Screening Assay Identifying Phosphorylation Activity

5

As a potential alternative and/or compliment to the assay of protein tyrosine kinase activity described in Example 40, an assay which detects activation (phosphorylation) of major intracellular signal transduction intermediates can also be used. For example, as described below one particular assay can detect tyrosine phosphorylation of the Erk-1 and Erk-2 kinases. However, phosphorylation of other molecules, such as Raf, JNK, p38 MAP, Map kinase kinase (MEK), MEK kinase, Src, Muscle specific kinase (MuSK), IRAK, Tec, and Janus, as well as any other phosphoserine, phosphotyrosine, or phosphothreonine molecule, can be detected by substituting these molecules for Erk-1 or Erk-2 in the following assay.

15 Specifically, assay plates are made by coating the wells of a 96-well ELISA plate with 0.1ml of protein G (1ug/ml) for 2 hr at room temp, (RT). The plates are then rinsed with PBS and blocked with 3% BSA/PBS for 1 hr at RT. The protein G plates are then treated with 2 commercial monoclonal antibodies (100ng/well) against Erk-1 and Erk-2 (1 hr at RT) (Santa Cruz Biotechnology). (To detect other molecules, this step can easily be modified by substituting a monoclonal antibody detecting any of the above described molecules.) After 3-5 rinses with PBS, the plates are stored at 4 degree C until use.

25 A431 cells are seeded at 20,000/well in a 96-well Loprodyne filterplate and cultured overnight in growth medium. The cells are then starved for 48 hr in basal medium (DMEM) and then treated with EGF (6ng/well) or 50 ul of the supernatants obtained in Example 31 for 5-20 minutes. The cells are then solubilized and extracts filtered directly into the assay plate.

After incubation with the extract for 1 hr at RT, the wells are again rinsed. As a positive control, a commercial preparation of MAP kinase (10ng/well) is used in place of A431 extract. Plates are then treated with a commercial polyclonal (rabbit)

30

antibody (1 µg/ml) which specifically recognizes the phosphorylated epitope of the Erk-1 and Erk-2 kinases (1 hr at RT). This antibody is biotinylated by standard procedures. The bound polyclonal antibody is then quantitated by successive incubations with Europium-streptavidin and Europium fluorescence enhancing reagent in the Wallac DELFIA instrument (time-resolved fluorescence). An increased fluorescent signal over background indicates a phosphorylation by polypeptide of the present invention or a molecule induced by polypeptide of the present invention.

Example 42: Assay for the Stimulation of Bone Marrow CD34+ Cell Proliferation

10

This assay is based on the ability of human CD34+ to proliferate in the presence of hematopoietic growth factors and evaluates the ability of isolated polypeptides expressed in mammalian cells to stimulate proliferation of CD34+ cells.

It has been previously shown that most mature precursors will respond to only a single signal. More immature precursors require at least two signals to respond. Therefore, to test the effect of polypeptides on hematopoietic activity of a wide range of progenitor cells, the assay contains a given polypeptide in the presence or absence of other hematopoietic growth factors. Isolated cells are cultured for 5 days in the presence of Stem Cell Factor (SCF) in combination with tested sample. SCF alone has a very limited effect on the proliferation of bone marrow (BM) cells, acting in such conditions only as a "survival" factor. However, combined with any factor exhibiting stimulatory effect on these cells (e.g., IL-3), SCF will cause a synergistic effect. Therefore, if the tested polypeptide has a stimulatory effect on a hematopoietic progenitors, such activity can be easily detected. Since normal BM cells have a low level of cycling cells, it is likely that any inhibitory effect of a given polypeptide, or agonists or antagonists thereof, might not be detected. Accordingly, assays for an inhibitory effect on progenitors is preferably tested in cells that are first subjected to *in vitro* stimulation with SCF+IL-3, and then contacted with the compound that is being evaluated for inhibition of such induced proliferation.

30

Briefly, CD34+ cells are isolated using methods known in the art. The cells

are thawed and resuspended in medium (QBSF 60 serum-free medium with 1% L-glutamine (500ml) Quality Biological, Inc., Gaithersburg, MD Cat# 160-204-101). After several gentle centrifugation steps at 200 x g, cells are allowed to rest for one hour. The cell count is adjusted to 2.5×10^5 cells/ml. During this time, 100 μ l of
5 sterile water is added to the peripheral wells of a 96-well plate. The cytokines that can be tested with a given polypeptide in this assay is rhSCF (R&D Systems, Minneapolis, MN, Cat# 255-SC) at 50 ng/ml alone and in combination with rhSCF and rhIL-3 (R&D Systems, Minneapolis, MN, Cat# 203-ML) at 30 ng/ml. After one hour, 10 μ l of prepared cytokines, 50 μ l of the supernatants prepared in Example 31
10 (supernatants at 1:2 dilution = 50 μ l) and 20 μ l of diluted cells are added to the media which is already present in the wells to allow for a final total volume of 100 μ l. The plates are then placed in a 37°C/5% CO₂ incubator for five days.

Eighteen hours before the assay is harvested, 0.5 μ Ci/well of [3H] Thymidine is added in a 10 μ l volume to each well to determine the proliferation rate. The
15 experiment is terminated by harvesting the cells from each 96-well plate to a filtermat using the Tomtec Harvester 96. After harvesting, the filtermats are dried, trimmed and placed into OmniFilter assemblies consisting of one OmniFilter plate and one OmniFilter Tray. 60 μ l Microscint is added to each well and the plate sealed with TopSeal-A press-on sealing film. A bar code 15 sticker is affixed to the first plate for
20 counting. The sealed plates is then loaded and the level of radioactivity determined via the Packard Top Count and the printed data collected for analysis. The level of radioactivity reflects the amount of cell proliferation.

The studies described in this example test the activity of a given polypeptide to stimulate bone marrow CD34+ cell proliferation. One skilled in the art could
25 easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof. As a nonlimiting example, potential antagonists tested in this assay would be expected to inhibit cell proliferation in the presence of cytokines and/or to increase the inhibition of cell proliferation in the presence of cytokines and a given polypeptide.
30 In contrast, potential agonists tested in this assay would be expected to enhance cell

proliferation and/or to decrease the inhibition of cell proliferation in the presence of cytokines and a given polypeptide.

The ability of a gene to stimulate the proliferation of bone marrow CD34+ cells indicates that polynucleotides and polypeptides corresponding to the gene are useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein.

Example 43: Assay for Extracellular Matrix Enhanced Cell Response (EMECCR)

10

The objective of the Extracellular Matrix Enhanced Cell Response (EMECCR) assay is to identify gene products (e.g., isolated polypeptides) that act on the hematopoietic stem cells in the context of the extracellular matrix (ECM) induced signal.

15

Cells respond to the regulatory factors in the context of signal(s) received from the surrounding microenvironment. For example, fibroblasts, and endothelial and epithelial stem cells fail to replicate in the absence of signals from the ECM. Hematopoietic stem cells can undergo self-renewal in the bone marrow, but not in *in vitro* suspension culture. The ability of stem cells to undergo self-renewal *in vitro* is dependent upon their interaction with the stromal cells and the ECM protein fibronectin (fn). Adhesion of cells to fn is mediated by the $\alpha_5\beta_1$ and $\alpha_4\beta_1$ integrin receptors, which are expressed by human and mouse hematopoietic stem cells. The factor(s) which integrate with the ECM environment and responsible for stimulating stem cell self-renewal has not yet been identified. Discovery of such factors should be of great interest in gene therapy and bone marrow transplant applications

20
25

Briefly, polystyrene, non tissue culture treated, 96-well plates are coated with fn fragment at a coating concentration of $0.2 \mu\text{g}/\text{cm}^2$. Mouse bone marrow cells are plated (1,000 cells/well) in 0.2 ml of serum-free medium. Cells cultured in the presence of IL-3 (5 ng/ml) + SCF (50 ng/ml) would serve as the positive control,

conditions under which little self-renewal but pronounced differentiation of the stem cells is to be expected. Gene products of the invention (e.g., including, but not limited to, polynucleotides and polypeptides of the present invention, and supernatants produced in Example 31), are tested with appropriate negative controls in the presence and absence of SCF(5.0 ng/ml), where test factor supernates represent 10% of the total assay volume. The plated cells are then allowed to grow by incubating in a low oxygen environment (5% CO₂, 7% O₂, and 88% N₂) tissue culture incubator for 7 days. The number of proliferating cells within the wells is then quantitated by measuring thymidine incorporation into cellular DNA. Verification of the positive hits in the assay will require phenotypic characterization of the cells, which can be accomplished by scaling up of the culture system and using appropriate antibody reagents against cell surface antigens and FACScan.

One skilled in the art could easily modify the exemplified studies to test the activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or antagonists and fragments and variants thereof.

If a particular polypeptide of the present invention is found to be a stimulator of hematopoietic progenitors, polynucleotides and polypeptides corresponding to the gene encoding said polypeptide may be useful for the diagnosis and treatment of disorders affecting the immune system and hematopoiesis. Representative uses are described in the "Immune Activity" and "Infectious Disease" sections above, and elsewhere herein. The gene product may also be useful in the expansion of stem cells and committed progenitors of various blood lineages, and in the differentiation and/or proliferation of various cell types.

Additionally, the polynucleotides and/or polypeptides of the gene of interest and/or agonists and/or antagonists thereof, may also be employed to inhibit the proliferation and differentiation of hematopoietic cells and therefore may be employed to protect bone marrow stem cells from chemotherapeutic agents during chemotherapy. This antiproliferative effect may allow administration of higher doses of chemotherapeutic agents and, therefore, more effective chemotherapeutic treatment.

Moreover, polynucleotides and polypeptides corresponding to the gene of interest may also be useful for the treatment and diagnosis of hematopoietic related disorders such as, for example, anemia, pancytopenia, leukopenia, thrombocytopenia or leukemia since stromal cells are important in the production of cells of hematopoietic lineages. The uses include bone marrow cell ex-vivo culture, bone marrow transplantation, bone marrow reconstitution, radiotherapy or chemotherapy of neoplasia.

Example 44: Human Dermal Fibroblast and Aortic Smooth Muscle Cell Proliferation

The polypeptide of interest is added to cultures of normal human dermal fibroblasts (NHDF) and human aortic smooth muscle cells (AoSMC) and two co-assays are performed with each sample. The first assay examines the effect of the polypeptide of interest on the proliferation of normal human dermal fibroblasts (NHDF) or aortic smooth muscle cells (AoSMC). Aberrant growth of fibroblasts or smooth muscle cells is a part of several pathological processes, including fibrosis, and restenosis. The second assay examines IL6 production by both NHDF and SMC. IL6 production is an indication of functional activation. Activated cells will have increased production of a number of cytokines and other factors, which can result in a proinflammatory or immunomodulatory outcome. Assays are run with and without co-TNF α stimulation, in order to check for costimulatory or inhibitory activity.

Briefly, on day 1, 96-well black plates are set up with 1000 cells/well (NHDF) or 2000 cells/well (AoSMC) in 100 μ l culture media. NHDF culture media contains: Clonetics FB basal media, 1mg/ml hFGF, 5mg/ml insulin, 50mg/ml gentamycin, 2%FBS, while AoSMC culture media contains Clonetics SM basal media, 0.5 μ g/ml hEGF, 5mg/ml insulin, 1 μ g/ml hFGF, 50mg/ml gentamycin, 50 μ g/ml Amphotericin B, 5%FBS. After incubation at 37°C for at least 4-5 hours, culture media is aspirated and replaced with growth arrest media. Growth arrest media for NHDF contains fibroblast basal media, 50mg/ml gentamycin, 2% FBS, while growth arrest media for AoSMC contains SM basal media, 50mg/ml gentamycin, 50 μ g/ml Amphotericin B,

0.4% FBS. Incubate at 37°C until day 2.

On day 2, serial dilutions and templates of the polypeptide of interest are designed such that they always include media controls and known-protein controls. For both stimulation and inhibition experiments, proteins are diluted in growth arrest
5 media. For inhibition experiments, TNF α is added to a final concentration of 2ng/ml (NHDF) or 5ng/ml (AoSMC). Add 1/3 vol media containing controls or polypeptides of the present invention and incubate at 37°C/5% CO₂ until day 5.

Transfer 60 μ l from each well to another labeled 96-well plate, cover with a plate-sealer, and store at 4°C until Day 6 (for IL6 ELISA). To the remaining 100 μ l in
10 the cell culture plate, aseptically add Alamar Blue in an amount equal to 10% of the culture volume (10 μ l). Return plates to incubator for 3 to 4 hours. Then measure fluorescence with excitation at 530nm and emission at 590nm using the CytoFluor. This yields the growth stimulation/inhibition data.

On day 5, the IL6 ELISA is performed by coating a 96 well plate with 50-100
15 μ l/well of Anti-Human IL6 Monoclonal antibody diluted in PBS, pH 7.4, incubate ON at room temperature.

On day 6, empty the plates into the sink and blot on paper towels. Prepare Assay Buffer containing PBS with 4% BSA. Block the plates with 200 μ l/well of Pierce Super Block blocking buffer in PBS for 1-2 hr and then wash plates with wash
20 buffer (PBS, 0.05% Tween-20). Blot plates on paper towels. Then add 50 μ l/well of diluted Anti-Human IL-6 Monoclonal, Biotin-labeled antibody at 0.50 mg/ml. Make dilutions of IL-6 stock in media (30, 10, 3, 1, 0.3, 0 ng/ml). Add duplicate samples to top row of plate. Cover the plates and incubate for 2 hours at RT on shaker. Plates are washed with wash buffer and blotted on paper towels. Dilute EU-labeled Streptavidin
25 1:1000 in Assay buffer, and add 100 μ l/well. Cover the plate and incubate 1 h at RT. Plates are again washed with wash buffer and blotted on paper towels. Add 100 μ l/well of Enhancement Solution and shake for 5 minutes. Read the plate on the Wallac DELFIA Fluorometer. Readings from triplicate samples in each assay are tabulated and averaged.

30 A positive result in this assay suggests AoSMC cell proliferation and that the

polypeptide of the present invention may be involved in dermal fibroblast proliferation and/or smooth muscle cell proliferation. A positive result also suggests many potential uses of polypeptides, polynucleotides, agonists and/or antagonists of the polynucleotide/polypeptide of the present invention which gives a positive result.

5 For example, inflammation and immune responses, wound healing, and angiogenesis, as detailed throughout this specification. Particularly, polypeptides of the present invention and polynucleotides of the present invention may be used in wound healing and dermal regeneration, as well as the promotion of vasculogenesis, both of the blood vessels and lymphatics. The growth of vessels can be used in the treatment of, 10 for example, cardiovascular diseases. Additionally, antagonists of polypeptides and polynucleotides of the invention may be useful in treating diseases, disorders, and/or conditions which involve angiogenesis by acting as an anti-vascular (e.g., anti-angiogenesis). These diseases, disorders, and/or conditions are known in the art and/or are described herein, such as, for example, malignancies, solid tumors, benign 15 tumors, for example hemangiomas, acoustic neuromas, neurofibromas, trachomas, and pyogenic granulomas; arteriosclerotic plaques; ocular angiogenic diseases, for example, diabetic retinopathy, retinopathy of prematurity, macular degeneration, corneal graft rejection, neovascular glaucoma, retrolental fibroplasia, rubeosis, retinoblastoma, uveitis and Pterygia (abnormal blood vessel growth) of the eye; 20 rheumatoid arthritis; psoriasis; delayed wound healing; endometriosis; vasculogenesis; granulations; hypertrophic scars (keloids); nonunion fractures; scleroderma; trachoma; vascular adhesions; myocardial angiogenesis; coronary collaterals; cerebral collaterals; arteriovenous malformations; ischemic limb angiogenesis; Osler-Webber Syndrome; plaque neovascularization; telangiectasia; 25 hemophiliac joints; angiofibroma; fibromuscular dysplasia; wound granulation; Crohn's disease; and atherosclerosis. Moreover, antagonists of polypeptides and polynucleotides of the invention may be useful in treating anti-hyperproliferative diseases and/or anti-inflammatory known in the art and/or described herein.

One skilled in the art could easily modify the exemplified studies to test the 30 activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or

antagonists and fragments and variants thereof.

Example 45: Cellular Adhesion Molecule (CAM) Expression on Endothelial Cells

5

The recruitment of lymphocytes to areas of inflammation and angiogenesis involves specific receptor-ligand interactions between cell surface adhesion molecules (CAMs) on lymphocytes and the vascular endothelium. The adhesion process, in both normal and pathological settings, follows a multi-step cascade that involves
10 intercellular adhesion molecule-1 (ICAM-1), vascular cell adhesion molecule-1 (VCAM-1), and endothelial leukocyte adhesion molecule-1 (E-selectin) expression on endothelial cells (EC). The expression of these molecules and others on the vascular endothelium determines the efficiency with which leukocytes may adhere to the local vasculature and extravasate into the local tissue during the development of an
15 inflammatory response. The local concentration of cytokines and growth factor participate in the modulation of the expression of these CAMs.

Briefly, endothelial cells (e.g., Human Umbilical Vein Endothelial cells (HUVECs)) are grown in a standard 96 well plate to confluence, growth medium is removed from the cells and replaced with 100 μ l of 199 Medium (10% fetal bovine
20 serum (FBS)). Samples for testing and positive or negative controls are added to the plate in triplicate (in 10 μ l volumes). Plates are then incubated at 37°C for either 5 h (selectin and integrin expression) or 24 h (integrin expression only). Plates are aspirated to remove medium and 100 μ l of 0.1% paraformaldehyde-PBS(with Ca++ and Mg++) is added to each well. Plates are held at 4°C for 30 min. Fixative is
25 removed from the wells and wells are washed 1X with PBS(+Ca,Mg) + 0.5% BSA and drained. 10 μ l of diluted primary antibody is added to the test and control wells. Anti-ICAM-1-Biotin, Anti-VCAM-1-Biotin and Anti-E-selectin-Biotin are used at a concentration of 10 μ g/ml (1:10 dilution of 0.1 mg/ml stock antibody). Cells are incubated at 37°C for 30 min. in a humidified environment. Wells are washed three
30 times with PBS(+Ca,Mg) + 0.5% BSA. 20 μ l of diluted ExtrAvidin-Alkaline

Phosphatase (1:5,000 dilution, referred to herein as the working dilution) are added to each well and incubated at 37°C for 30 min. Wells are washed three times with PBS(+Ca,Mg)+0.5% BSA. Dissolve 1 tablet of p-Nitrophenol Phosphate pNPP per 5 ml of glycine buffer (pH 10.4). 100 µl of pNPP substrate in glycine buffer is added to each test well. Standard wells in triplicate are prepared from the working dilution of the ExtrAvidin-Alkaline Phosphatase in glycine buffer: 1:5,000 (10^0) > $10^{-0.5}$ > 10^{-1} > $10^{-1.5}$. 5 µl of each dilution is added to triplicate wells and the resulting AP content in each well is 5.50 ng, 1.74 ng, 0.55 ng, 0.18 ng. 100 µl of pNPP reagent is then added to each of the standard wells. The plate is incubated at 37°C for 4h. A volume of 50 µl of 3M NaOH is added to all wells. The plate is read on a plate reader at 405 nm using the background subtraction option on blank wells filled with glycine buffer only. Additionally, the template is set up to indicate the concentration of AP-conjugate in each standard well [5.50 ng; 1.74 ng; 0.55 ng; 0.18 ng]. Results are indicated as amount of bound AP-conjugate in each sample.

Example 46: Alamar Blue Endothelial Cells Proliferation Assay

This assay may be used to quantitatively determine protein mediated inhibition of bFGF-induced proliferation of Bovine Lymphatic Endothelial Cells (LECs), Bovine Aortic Endothelial Cells (BAECs) or Human Microvascular Uterine Myometrial Cells (UTMECs). This assay incorporates a fluorometric growth indicator based on detection of metabolic activity. A standard Alamar Blue Proliferation Assay is prepared in EGM-2MV with 10 ng /ml of bFGF added as a source of endothelial cell stimulation. This assay may be used with a variety of endothelial cells with slight changes in growth medium and cell concentration. Dilutions of the protein batches to be tested are diluted as appropriate. Serum-free medium (GIBCO SFM) without bFGF is used as a non-stimulated control and Angiostatin or TSP-1 are included as a known inhibitory controls.

Briefly, LEC, BAECs or UTMECs are seeded in growth media at a density of 5000 to 2000 cells/well in a 96 well plate and placed at 37-C overnight. After the

overnight incubation of the cells, the growth media is removed and replaced with GIBCO EC-SFM. The cells are treated with the appropriate dilutions of the protein of interest or control protein sample(s) (prepared in SFM) in triplicate wells with additional bFGF to a concentration of 10 ng/ ml. Once the cells have been treated
5 with the samples, the plate(s) is/are placed back in the 37° C incubator for three days. After three days 10 ml of stock alamar blue (Biosource Cat# DAL1100) is added to each well and the plate(s) is/are placed back in the 37°C incubator for four hours. The plate(s) are then read at 530nm excitation and 590nm emission using the CytoFluor fluorescence reader. Direct output is recorded in relative fluorescence units.

10 Alamar blue is an oxidation-reduction indicator that both fluoresces and changes color in response to chemical reduction of growth medium resulting from cell growth. As cells grow in culture, innate metabolic activity results in a chemical reduction of the immediate surrounding environment. Reduction related to growth causes the indicator to change from oxidized (non-fluorescent blue) form to reduced
15 (fluorescent red) form. i.e. stimulated proliferation will produce a stronger signal and inhibited proliferation will produce a weaker signal and the total signal is proportional to the total number of cells as well as their metabolic activity. The background level of activity is observed with the starvation medium alone. This is compared to the output observed from the positive control samples (bFGF in growth medium) and
20 protein dilutions.

Example 47: Detection of Inhibition of a Mixed Lymphocyte Reaction

This assay can be used to detect and evaluate inhibition of a Mixed
25 Lymphocyte Reaction (MLR) by gene products (e.g., isolated polypeptides). Inhibition of a MLR may be due to a direct effect on cell proliferation and viability, modulation of costimulatory molecules on interacting cells, modulation of adhesiveness between lymphocytes and accessory cells, or modulation of cytokine production by accessory cells. Multiple cells may be targeted by these polypeptides

since the peripheral blood mononuclear fraction used in this assay includes T, B and natural killer lymphocytes, as well as monocytes and dendritic cells.

Polypeptides of interest found to inhibit the MLR may find application in diseases associated with lymphocyte and monocyte activation or proliferation. These
5 include, but are not limited to, diseases such as asthma, arthritis, diabetes, inflammatory skin conditions, psoriasis, eczema, systemic lupus erythematosus, multiple sclerosis, glomerulonephritis, inflammatory bowel disease, crohn's disease, ulcerative colitis, arteriosclerosis, cirrhosis, graft vs. host disease, host vs. graft disease, hepatitis, leukemia and lymphoma.

10 Briefly, PBMCs from human donors are purified by density gradient centrifugation using Lymphocyte Separation Medium (LSM[®], density 1.0770 g/ml, Organon Teknika Corporation, West Chester, PA). PBMCs from two donors are adjusted to 2×10^6 cells/ml in RPMI-1640 (Life Technologies, Grand Island, NY) supplemented with 10% FCS and 2 mM glutamine. PBMCs from a third donor is
15 adjusted to 2×10^5 cells/ml. Fifty microliters of PBMCs from each donor is added to wells of a 96-well round bottom microtiter plate. Dilutions of test materials (50 μ l) is added in triplicate to microtiter wells. Test samples (of the protein of interest) are added for final dilution of 1:4; rhIL-2 (R&D Systems, Minneapolis, MN, catalog number 202-IL) is added to a final concentration of 1 μ g/ml; anti-CD4 mAb (R&D
20 Systems, clone 34930.11, catalog number MAB379) is added to a final concentration of 10 μ g/ml. Cells are cultured for 7-8 days at 37°C in 5% CO₂, and 1 μ C of [³H] thymidine is added to wells for the last 16 hrs of culture. Cells are harvested and thymidine incorporation determined using a Packard TopCount. Data is expressed as the mean and standard deviation of triplicate determinations.

25 Samples of the protein of interest are screened in separate experiments and compared to the negative control treatment, anti-CD4 mAb, which inhibits proliferation of lymphocytes and the positive control treatment, IL-2 (either as recombinant material or supernatant), which enhances proliferation of lymphocytes.

One skilled in the art could easily modify the exemplified studies to test the
30 activity of polynucleotides (e.g., gene therapy), antibodies, agonists, and/or

antagonists and fragments and variants thereof.

It will be clear that the invention may be practiced otherwise than as particularly described in the foregoing description and examples. Numerous modifications and variations of the present invention are possible in light of the above teachings and, therefore, are within the scope of the appended claims.

The entire disclosure of each document cited (including patents, patent applications, journal articles, abstracts, laboratory manuals, books, or other disclosures) in the Background of the Invention, Detailed Description, and Examples is hereby incorporated herein by reference. Further, the hard copy of the sequence listing submitted herewith and the corresponding computer readable form are both incorporated herein by reference in their entireties. Moreover, the hard copy of and the corresponding computer readable form of the Sequence Listing of Serial No. 60/124,270 are also incorporated herein by reference in their entireties.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

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A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209059
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
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ATCC Deposit No. 209059**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209059

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application?	UNASSIGNED
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B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209060
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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ATCC Deposit No. 209060**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

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Page 2

ATCC Deposit No. 209060

DENMARK

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SWEDEN

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NETHERLANDS

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545

Applicant's or agent's file reference number	PA106PCT	International application number	UNASSIGNED
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B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>20 May 1997</u>	Accession Number <u>209061</u>
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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ATCC Deposit No. 209061**CANADA**

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NORWAY

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FINLAND

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Page 2

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SWEDEN

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NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209062
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized officer PCT/Internat'l Appl Processing Div. (703) 305-2639</p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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ATCC Deposit No. 209062**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209062

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA106PCT	International application f	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209063
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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For receiving Office use only	For International Bureau use only
<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
Authorized officer PCT/International Appl Processing Div. (703) 305-3639	Authorized officer

ATCC Deposit No. 209063**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

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Page 2

ATCC Deposit No. 209063

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209064
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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Authorized officer Lynette Powell PCT/International Processing Div. (703) 305-3639	Authorized officer

ATCC Deposit No. 209064**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209064

DENMARK

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SWEDEN

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NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209065
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

For receiving Office use only	For International Bureau use only
<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
Authorized officer Processing Div. (703) 305-5639	Authorized officer

ATCC Deposit No. 209065**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

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Page 2

ATCC Deposit No. 209065

DENMARK

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SWEDEN

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NETHERLANDS

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209066
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
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<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
Authorized officer PCT/International Appl Processing Div. (703) 305-3639	Authorized officer

ATCC Deposit No. 209066**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

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AUSTRALIA

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FINLAND

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UNITED KINGDOM

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Page 2

ATCC Deposit No. 209066

DENMARK

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Applicant's or agent's file reference number	PA106PCT	International application?	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT	
Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209067
C. ADDITIONAL INDICATIONS (leave blank if not applicable)	
This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

For receiving Office use only	For International Bureau use only
<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
Authorized officer Microorganism Processing Div. (703) 305-6039	Authorized officer

ATCC Deposit No. 209067**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2**ATCC Deposit No. 209067****DENMARK**

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application?	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209068
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<input checked="" type="checkbox"/> For receiving Office use only This sheet was received with the international application Authorized officer: PCT/International Processing Div. (703) 365-3339	<input type="checkbox"/> For International Bureau use only This sheet was received by the International Bureau on: Authorized officer:
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ATCC Deposit No. 209068**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209068

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application?	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 20 May 1997	Accession Number 209069
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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ATCC Deposit No. 209069**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209069

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 12 January 1998	Accession Number 209579
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

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Authorized officer Jon M. Bouch PCT/Internat'l Appl Processing Div. (703) 305-3639	Authorized officer

ATCC Deposit No. 209579**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209579

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

575

Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>12 January 1998</u>	Accession Number <u>209578</u>
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

For receiving Office use only <input checked="" type="checkbox"/> This sheet was received with the international application Authorized officer <u>Jerry McDaniel</u> <u>PCT/International Appl Processing Div.</u> <u>(703) 605-6080</u>	For International Bureau use only <input type="checkbox"/> This sheet was received by the International Bureau on: Authorized officer
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ATCC Deposit No. 209578**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 209578

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>16 July 1998</u>	Accession Number <u>203067</u>
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
<u>Europe</u> In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit") 	

For receiving Office use only <input checked="" type="checkbox"/> This sheet was received with the international application Authorized officer <u>Tony McDowell</u> <u>PCT/International Appl Processing Div.</u> <u>(703) 305-6669</u>	For International Bureau use only <input type="checkbox"/> This sheet was received by the International Bureau on: Authorized officer
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ATCC Deposit No. 203067**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 203067

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 16 July 1998	Accession Number 203068
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized officer Jerald M. Bowen PCT/Intemat'l Appl Processing Div. (703) 305-3339</p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer</p>
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ATCC Deposit No. 203068**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2
ATCC Deposit No. 203068

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution <u>American Type Culture Collection</u>	
Address of depositary institution (including postal code and country) <u>10801 University Boulevard</u> <u>Manassas, Virginia 20110-2209</u> <u>United States of America</u>	
Date of deposit <u>1 February 1999</u>	Accession Number <u>203609</u>
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
<u>Europe</u> In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit") 	

For receiving Office use only <input checked="" type="checkbox"/> This sheet was received with the international application <u>Jeryl McDowell</u> Authorized officer <u>PCT/International Appl Processing Div.</u> <u>(703) 305-3339</u>	For International Bureau use only <input type="checkbox"/> This sheet was received by the International Bureau on: Authorized officer
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ATCC Deposit No. 203609**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 203609

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 1 February 1999	Accession Number 203610
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

For receiving Office use only	For International Bureau use only
<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
Jeryl McEwen Authorized officer PCT/International App Processing Div. (703) 305-3339	Authorized officer

ATCC Deposit No. 203610**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 203610

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 17 November 1998	Accession Number 203485
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

For receiving Office use only	For International Bureau use only
<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
J. and M. Davis PCT/International Appl Processing Div. (703) 305-3839	Authorized officer

ATCC Deposit No. 203485**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement; or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. 203485

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

The applicant hereby requests that, until the application has been laid open to public inspection (by the Swedish Patent Office), or has been finally decided upon by the Swedish Patent Office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the International Bureau before the expiration of 16 months from the priority date (preferably on the Form PCT/RO/134 reproduced in annex Z of Volume I of the PCT Applicant's Guide). If such a request has been filed by the applicant any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Swedish Patent Office or any person approved by a applicant in the individual case.

NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

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Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 18 June 1999	Accession Number PTA-252
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

For receiving Office use only	For International Bureau use only
<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
Jeryl M. D. Swell Authorized officer PCT/Internat'l Appl Processing Div. (703) 305-3839	Authorized officer

ATCC Deposit No. PTA-252**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

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FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. PTA-252

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

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NETHERLANDS

The applicant hereby requests that until the date of a grant of a Netherlands patent or until the date on which the application is refused or withdrawn or lapsed, the microorganism shall be made available as provided in the 31F(1) of the Patent Rules only by the issue of a sample to an expert. The request to this effect must be furnished by the applicant with the Netherlands Industrial Property Office before the date on which the application is made available to the public under Section 22C or Section 25 of the Patents Act of the Kingdom of the Netherlands, whichever of the two dates occurs earlier.

596

Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 18 June 1999	Accession Number PTA-253
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States)	
Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable)	
The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

For receiving Office use only	For International Bureau use only
<input checked="" type="checkbox"/> This sheet was received with the international application	<input type="checkbox"/> This sheet was received by the International Bureau on:
<u>Jeryl McDowell</u> Authorized officer PCT/US00/05882 Appl Processing Div. (703) 305-5639	Authorized officer

ATCC Deposit No. PTA-253**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

NORWAY

The applicant hereby requests that the application has been laid open to public inspection (by the Norwegian Patent Office), or has been finally decided upon by the Norwegian Patent Office without having been laid open inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Norwegian Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Norwegian Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on the list of recognized experts drawn up by the Norwegian Patent Office or any person approved by the applicant in the individual case.

AUSTRALIA

The applicant hereby gives notice that the furnishing of a sample of a microorganism shall only be effected prior to the grant of a patent, or prior to the lapsing, refusal or withdrawal of the application, to a person who is a skilled addressee without an interest in the invention (Regulation 3.25(3) of the Australian Patents Regulations).

FINLAND

The applicant hereby requests that, until the application has been laid open to public inspection (by the National Board of Patents and Regulations), or has been finally decided upon by the National Board of Patents and Registration without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art.

UNITED KINGDOM

The applicant hereby requests that the furnishing of a sample of a microorganism shall only be made available to an expert. The request to this effect must be filed by the applicant with the International Bureau before the completion of the technical preparations for the international publication of the application.

Page 2

ATCC Deposit No. PTA-253

DENMARK

The applicant hereby requests that, until the application has been laid open to public inspection (by the Danish Patent Office), or has been finally decided upon by the Danish Patent office without having been laid open to public inspection, the furnishing of a sample shall only be effected to an expert in the art. The request to this effect shall be filed by the applicant with the Danish Patent Office not later than at the time when the application is made available to the public under Sections 22 and 33(3) of the Danish Patents Act. If such a request has been filed by the applicant, any request made by a third party for the furnishing of a sample shall indicate the expert to be used. That expert may be any person entered on a list of recognized experts drawn up by the Danish Patent Office or any person by the applicant in the individual case.

SWEDEN

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599

Applicant's or agent's file reference number	PA106PCT	International application	UNASSIGNED
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INDICATIONS RELATING TO A DEPOSITED MICROORGANISM

(PCT Rule 13bis)

A. The indications made below relate to the microorganism referred to in the description on page <u>121</u> , line <u>N/A</u>	
B. IDENTIFICATION OF DEPOSIT Further deposits are identified on an additional sheet <input type="checkbox"/>	
Name of depositary institution American Type Culture Collection	
Address of depositary institution (including postal code and country) 10801 University Boulevard Manassas, Virginia 20110-2209 United States of America	
Date of deposit 22 December 1999	Accession Number PTA-1081
C. ADDITIONAL INDICATIONS (leave blank if not applicable) This information is continued on an additional sheet <input type="checkbox"/>	
D. DESIGNATED STATES FOR WHICH INDICATIONS ARE MADE (if the indications are not for all designated States) Europe In respect to those designations in which a European Patent is sought a sample of the deposited microorganism will be made available until the publication of the mention of the grant of the European patent or until the date on which application has been refused or withdrawn or is deemed to be withdrawn, only by the issue of such a sample to an expert nominated by the person requesting the sample (Rule 28 (4) EPC).	
E. SEPARATE FURNISHING OF INDICATIONS (leave blank if not applicable) The indications listed below will be submitted to the International Bureau later (specify the general nature of the indications e.g., "Accession Number of Deposit")	

<p>For receiving Office use only</p> <p><input checked="" type="checkbox"/> This sheet was received with the international application</p> <p>Authorized officer: PCT/Internat'l Appl Processing Div. (703) 305-3639</p>	<p>For International Bureau use only</p> <p><input type="checkbox"/> This sheet was received by the International Bureau on:</p> <p>Authorized officer:</p>
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ATCC Deposit No. PTA-1081**CANADA**

The applicant requests that, until either a Canadian patent has been issued on the basis of an application or the application has been refused, or is abandoned and no longer subject to reinstatement, or is withdrawn, the Commissioner of Patents only authorizes the furnishing of a sample of the deposited biological material referred to in the application to an independent expert nominated by the Commissioner, the applicant must, by a written statement, inform the International Bureau accordingly before completion of technical preparations for publication of the international application.

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Page 2

ATCC Deposit No. PTA-1081

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What Is Claimed Is:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:
- 5
- (a) a polynucleotide fragment of SEQ ID NO:X or a polynucleotide fragment of the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - (b) a polynucleotide encoding a polypeptide fragment of SEQ ID NO:Y or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - 10 (c) a polynucleotide encoding a polypeptide fragment of a polypeptide encoded by SEQ ID NO:X or a polypeptide fragment encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - 15 (d) a polynucleotide encoding a polypeptide domain of SEQ ID NO:Y or a polypeptide domain encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - (e) a polynucleotide encoding a polypeptide epitope of SEQ ID NO:Y or a polypeptide epitope encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X;
 - 20 (f) a polynucleotide encoding a polypeptide of SEQ ID NO:Y or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X, having biological activity;
 - (g) a polynucleotide which is a variant of SEQ ID NO:X;
 - 25 (h) a polynucleotide which is an allelic variant of SEQ ID NO:X;
 - (i) a polynucleotide which encodes a species homologue of the SEQ ID NO:Y;
 - (j) a polynucleotide capable of hybridizing under stringent conditions to any one of the polynucleotides specified in (a)-(i), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide
 - 30

sequence of only A residues or of only T residues.

2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a protein.

5

3. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding the sequence identified as SEQ ID NO:Y or the polypeptide encoded by the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

10

4. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises the entire nucleotide sequence of SEQ ID NO:X or the cDNA sequence included in the related cDNA clone, which is hybridizable to SEQ ID NO:X.

15

5. The isolated nucleic acid molecule of claim 2, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

20

6. The isolated nucleic acid molecule of claim 3, wherein the nucleotide sequence comprises sequential nucleotide deletions from either the C-terminus or the N-terminus.

25

7. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.

8. A method of making a recombinant host cell comprising the isolated nucleic acid molecule of claim 1.

30

9. A recombinant host cell produced by the method of claim 8.

10. The recombinant host cell of claim 9 comprising vector sequences.
11. An isolated polypeptide comprising an amino acid sequence at least
5 95% identical to a sequence selected from the group consisting of:
- (a) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (b) a polypeptide fragment of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone, having biological activity;
 - 10 (c) a polypeptide domain of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (d) a polypeptide epitope of SEQ ID NO:Y or of the sequence encoded by the cDNA included in the related cDNA clone;
 - (e) a full length protein of SEQ ID NO:Y or of the sequence encoded by the
15 cDNA included in the related cDNA clone;
 - (f) a variant of SEQ ID NO:Y;
 - (g) an allelic variant of SEQ ID NO:Y; or
 - (h) a species homologue of the SEQ ID NO:Y.
- 20 12. The isolated polypeptide of claim 11, wherein the full length protein comprises sequential amino acid deletions from either the C-terminus or the N-terminus.
13. An isolated antibody that binds specifically to the isolated polypeptide
25 of claim 11.
14. A recombinant host cell that expresses the isolated polypeptide of claim 11.
- 30 15. A method of making an isolated polypeptide comprising:

- (a) culturing the recombinant host cell of claim 14 under conditions such that said polypeptide is expressed; and
- (b) recovering said polypeptide.

5 16. The polypeptide produced by claim 15.

 17. A method for preventing, treating, or ameliorating a medical condition, comprising administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 11 or the polynucleotide of claim 1.

10

 18. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

 (a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and

15 (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.

 19. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:

20 (a) determining the presence or amount of expression of the polypeptide of claim 11 in a biological sample; and

 (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.

25 20. A method for identifying a binding partner to the polypeptide of claim 11 comprising:

 (a) contacting the polypeptide of claim 11 with a binding partner; and

 (b) determining whether the binding partner effects an activity of the polypeptide.

30

21. The gene corresponding to the cDNA sequence of SEQ ID NO:Y.
22. A method of identifying an activity in a biological assay, wherein the method comprises:
- 5 (a) expressing SEQ ID NO:X in a cell;
- (b) isolating the supernatant;
- (c) detecting an activity in a biological assay; and
- (d) identifying the protein in the supernatant having the activity.
- 10 23. The product produced by the method of claim 20.

SEQUENCE LISTING

<110> Craig Rosen,
Steve Ruben

<120> Human Cancer Associated Gene Sequences and Polypeptides

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ctgggacctg gaagacccct gccacacctc cccacctcgg aatgcacctc ggatgtggag 240
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aagaccacac gtgcccagac cggggcccgc gcctcatcct ctgcgcgacc cgagactggtg 540
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t 901

<210> 6
<211> 731
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (106)
<223> n equals a,t,g, or c

<400> 6
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cgagctgctg aaggcactgg gtgtgaacgc catgctgagg aaagtggccg tagcggctgc 180

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<210> 7

<211> 2774

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2652)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2698)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2714)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2756)

<223> n equals a,t,g, or c

<400> 7

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<210> 8

<211> 2613

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (896)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1246)

<223> n equals a,t,g, or c

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<210> 9

<211> 1101

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (730)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (983)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1055)

<223> n equals a,t,g, or c

<400> 9

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<210> 10

<211> 1373

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1364)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1373)

<223> n equals a,t,g, or c

<400> 10

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<210> 11

<211> 3804

<212> DNA

<213> Homo sapiens

<400> 11

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<210> 12

<211> 2157

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (806)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (846)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1517)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2110)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2116)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2137)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2150)

<223> n equals a,t,g, or c

<400> 12

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<210> 13

<211> 1117

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1102)

<223> n equals a,t,g, or c

<400> 13

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ctggagatca tctaccagg ctggggcttc tgggacaggc gaggaccac ggaccctgga 180
agagctggtc caggggactg aactcccggc atctttacag agcagagcat gatcacattc 240
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gtggaaagca cctgtctgtt ggatgatgct gggactccaa aggatttcac atactgcac 360
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gaatttgggg tgctgaatag cttggcgaat gtcctctcac agcacctcaa ccaaaaagac 480
accctgatgc agcgttgcg caatgggctt cagaattgtg ccacacacac ccagcccttc 540
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<210> 14

<211> 885
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (869)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (884)
 <223> n equals a,t,g, or c

<400> 14
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 gtggccaccg atgacctgga tttccggcac cacagctaca aggacatgcg ccagctcatg 180
 aagtggtga acgaggagtg cccaccatc acccgactt acagcctggg caagagctca 240
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 cgccagatgc cacggtatcc acggaggtcc gggccatcat tgcctggatg gagaagaacc 720
 ccttcgtgct gggagcaa atctgaacggcg gcgagcggt agtatcctac ccctacgata 780
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<210> 15
 <211> 1024
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (938)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (1005)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (1012)
 <223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1019)

<223> n equals a,t,g, or c

<400> 15

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gccagatgct caaggaggga gcgaaacact tttcaggatt agaagaggct gtgtatagaa 180
acatacaagc ttgcaaggag cttgccc aaa ccactcgtac agcatatgga ccaaattgaa 240
tgaacaaaat ggttatcaac cacttggaga agttgtttgt gacaaacgat gcagcaacta 300
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tcagttcctc ttcagtattg catggcatgg tttttaagaa ggaaaccgaa gtgatgtaac 780
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aaat 1024
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<210> 16

<211> 545

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (40)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (45)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (403)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (476)

<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (507)
<223> n equals a,t,g, or c

<400> 16
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atcaggactg aacacagagg actcaccatg gagtttgggc tgagctggat ttcccttgct 180
gctattttta aaggtgtcca gtgtgagggtg cagctgggtg agtctggggg aggcttggtg 240
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ctttt 545

<210> 17
<211> 623
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (15)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (613)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (616)
<223> n equals a,t,g, or c

<400> 17
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actcagggct catctacgta agtggctgcc gtggcacccc gcaggctggg tctgagggct 600
ccgaggtggg gnggngggcg ggt 623

<210> 18
<211> 559

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (371)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (531)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (544)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (547)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (556)
<223> n equals a,t,g, or c

<400> 18
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gcnngcnacg gtattngga 559

<210> 19
<211> 1355
<212> DNA
<213> Homo sapiens

<220>
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<222> (55)
<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (1045)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1355)
<223> n equals a,t,g, or c

<400> 19
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<210> 20
<211> 1280
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1043)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1162)
<223> n equals a,t,g, or c

<400> 20
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<210> 21

<211> 1191

<212> DNA

<213> Homo sapiens

<400> 21

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<210> 22

<211> 853

<212> DNA

<213> Homo sapiens

<400> 22

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accattaacc taaaacttac tatttaacct agtggtttttg ttgatgaggt ttacattatg 720
tgaatacatg cacatttggt tcttatacag gtggtgtgaa ctctagggcc tatactagaa 780
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atgtaaatat ata 853
```

<210> 23

<211> 474

<212> DNA

<213> Homo sapiens

<400> 23

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tcctctcgct tccctgccgg gcagggcgcca tggcggaagc tcggcgacgg gcgcctgcgg 180
agaggcgatg gcagcgccgg aaggctcctc gggcccgccg ggcttgactc tgggcccggag 240
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gacgggcttc tccggcatga agggctgagg ctgcaaggtc ccgcagaggg cctgctcaaa 360
ctcctggcgg gactgamgcg gccggacktk cggccccgct gggccggggc ctkgtkggtk 420
gccargaara agcgtcccag gaagccggcc tgccggcaag agcggggccc agcc 474
```

<210> 24

<211> 2280

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (13)

<223> n equals a,t,g, or c

<400> 24

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agtagccgcc gccggagccg cgcgcacca tggccgagaa cccagccttg gagaaccacc 120
gcatcaagag cttcaagaac aagggccgcg atgtggaaac aatgcgaaga catagaaatg 180
aagtgcaggt ggaactgcgg aagaacaaaa gagatgaaca cttattgaaa aagagaaatg 240
ttccccaaga agaaagtcta gaagattcag atgttgatgc tgatttttaa gcacaaaatg 300
```

```

taaccctaga agctatatattg cagaatgcc aagtgataa cccagtgggc caattgagtg 360
ctgtccaggc agcaagaaaa ctgttatcca gtgacagaaa tccaccgatt gatgacttaa 420
taaaatctgg gattttacca attctagtca aatgtctaga aagggatgat aatccttcat 480
tacagtttga agctgcttgg gcattaacta acatagcatc aggracttct gcacagactc 540
aagctgttgt gcagtctaata gcagtacctc tttttctgag acttctctcg tcaccacatc 600
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aatgattttc attggtggaa ctgacacaaa aaaagtaact taaaaacaag aaacttggtt 2220
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```

<210> 25

<211> 1061

<212> DNA

<213> Homo sapiens

<400> 25

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cgacccggcc cagtgcgcag gcgcgggaaa gttgaactaa taaagtttgt acgagttcag 60
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atggcaggct ctgaagagct ggggctccgg gaagacacgc tgagggtcct agctgccttc 180
cttaggcgtg gtgaggctgc cgggtctcct gtcccaactc cacctagaag ccctgcccc 240
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gagaagggaag ccatactgcg gaggttggtg gccctgctgg aggaggaggc agaagtcatt 540
aaccagaagc tggcctcgga ccccgccctg gcgacaagct ggtccgcctg tcctccgact 600
ctttcgcccc cctggtggag ctgttctgta gccgggatga cagctctcgc ccaagccgag 660

```

```

catgccccgg gcccccgcct ccttccccgg agccctgggc ccgcctggcc ctagccatgg 720
agctgagccg gcgcgtggcc gggctggggg gcaccctggc cggactcagc gtggagcacg 780
tgcacagctt cagccctgg atccaggcca cgggggctgg gagggcatcc tggtgtttc 840
acccgtggac ttgaacttgc cattggactg agctctttct cagaagctgc tacaagatga 900
cacctcatgt ccctgccctc ttcgtgtgct tttccaagtc ttcctattcc actcagggct 960
gtggggtggt ggttgcccta cctgtttttg ccaaaaataa attgttttaa acttttctta 1020
ttaaaaacgt tacaaaaaaa aaaaaaaaam aggggggccg c 1061

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<210> 26

<211> 1572

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (19)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (28)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1491)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1527)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1555)

<223> n equals a,t,g, or c

<400> 26

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gtttgtcagt ctgcgcgng gcggcgngg tggcgcggc ggcgatccac agtgattcgg 60
ccgccgcgcc ggggggtggg ggggtgcgc gggacttttt tttttttcag actgaccgcg 120
gggcagctgc ggacatgtcg accccggccc ggaggaggct catgcgggat ttcaagcgg 180
tacaagagga cccacctgtg ggtgtcagt gcgcaccatc tgaaaacaac atcatgcagt 240
ggaatgcagt tatatttggg ccagaaggga caccttttga agatggtact tttaaactag 300
taatagaatt ttctgaagaa tatccaaata aaccaccaac tgtaggttt ttatccaaa 360
tgtttcatcc aaatgtgtat gctgatggta gcatatgttt agatattcctt cagaatcgat 420
ggagtccaac atatgatgta tcttctatct taacatcaat tcagtctctg ctggatgaac 480
cgaatcctaa cagtccagcc aatagccagg cagcacagct ttatcaggaa aacaaacgag 540
aatatgagaa aagagtttcg gccattgttg aacaaagctg gaatgattca taatagacaa 600
ctggtctgtt aatctttttc atcattgttg tgtataattt acctctcatt agaaaggcta 660
acaaatttta agtgccacag gttttaagga ttctgcagaa aaaaaagaaa aaagtccttc 720

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aactaagtta ttgctgcata aatttgtaat atatcctggt tgtatttttt tccaagtgtg 840
taatgttggg gtggagtttt catgacagaa tatacacatt ttgtaaatct gtactttttt 900
caaataattga atgccttatt tttgaattct ttagattttt aaattggaga aaagcactta 960
aagtttttta tatatgaata ttacatgtaa agctgttaaa atacataact tcagtgcagg 1020
agactttgtc acttatttcc ttatgtgtgt aggaggggtt aataagtctc tagctctcca 1080
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tagtttcaat tgagtaattc tagacataac tggtttgact ctgtccaact ctgtatttag 1260
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cactttaaaa aattttttga ttaatgaagg aaagtaaaac cataaacatt tgccaaaaat 1440
tcatgccccg gtattaggca atggaattag gttgcattgg gtttgaggaa ngggcacatt 1500
ggggggggga atcttggggg gttaacnttt aaattatttt gggaaaattt acccntttta 1560
tgcccatggc ct 1572
```

<210> 27

<211> 2005

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1976)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1977)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1978)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1979)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1986)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1988)

<223> n equals a,t,g, or c

<400> 27

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gcgagcgcgt gggtcgcma cgcgygcga agcagcgggt tagtggtcgc gcgcccagacc 60
tccgcagtc cagccgagcc gcgacccttc cggccgtccc caccaccact cgccgccatg 120
cgccctccgcc gcctagcgct gttcccgggt gtggcgctgc ttcttgccgc gggccgcctc 180
gccgctgcct ccgacgtgct agaactcacg gacgacaact tcgagagtcg catctccgac 240
acgggctctg cgggcctcat gctcgtcgag ttcttcgcyc cctggtgtgg aactgcaag 300
agacttgac ctgagtatga agctgcagct accagattaa aaggaatagt cccattagca 360
aaggttgatt gcactgccaa cactaacacc tgtaataaat atggagtcag tggatatcca 420
accctgaaga tatttagaga tgggaagaa gcaggtgctt atgatggacc taggactgct 480
gatggaattg tcagccactt gaagaagcag gcaggaccag cttcagtgcc tctcaggact 540
gaggaagaat ttaagaaatt cattagtgat aaagatgcct ctatagtagg ttttttcgat 600
gattcattca gtgaggctca ctccgagttc ctaaaagcag ccagcaactt gagggataac 660
taccgatttg cacatacgaa tggtgagtc ctggtgaacg agtatgatga taatggagag 720
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cactgtttat ggaaatacca ggaccagttt atgtttgtgg ttttgggaaa aattatttgt 1860
gttgggggaa atgttggtgg ggtgggggtg agttgggggt attttctaatt tttttttgta 1920
catttggaac agtgacaata aatgagaccc ctttaaaaaa aaaaaaaa aaaaannnnng 1980
gggggncncc cagtcccat cgccc
2005

```

<210> 28

<211> 1408

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (11)

<223> n equals a,t,g, or c

<400> 28

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ttcactgcaa ggggggcaac gtgtgggttg ctctattcaa gaacaacgag ccggtgatgt 120
acacgtacga cgagtacaaa aagggcttcc tggaccaggc atctgggagt gcagtgtctg 180
tgctcaggcc cggagaccgg tgttcctcca gatgccctca gaacaggctg caggactgta 240

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```

tgccgggag tatgtccact cctccttttc aggatattta ttgtatccca tgtaaaaaaca 300
aaaaaaca aaacaaagaa aagaaagaga ttttatagaa gaaaatgaca caccaaaaaa 360
tccaaatgaa aaacataatt gcttcaaaac acttacacag ttggaaagtt atatgtaagt 420
gaaaatttgg accatttgtt acaataaaaa actaagatgc atgtttaata ctccacacag 480
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cccactggaa tcatattagc tgttttatgt tatatgcttc cacagtaacc tgcttattca 600
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gtttacttta aaatatattat aaatatgcct taaagaaata caaatgataa caattacata 720
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tctgttttagc atgtatgcaa actggata
1408

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<210> 29

<211> 917

<212> DNA

<213> Homo sapiens

<400> 29

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ggcagagcg aggggaggag ccgctggctc ccagccccgc cgcgatgagc ctcgcccgcc 60
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ggaccatgtg cgcgtcccgg gacgactggc gctgtgcgct ccatgcacga kttttccgcc 180
aaggacatcg acgggcacat ggtaacctg gacaagtacc ggggcttcgt gtgcacgtc 240
accaacgtgg cctcccagtg aggcaagacc gaagtaaaact aactcagct cgtcgacctg 300
cacgcccgat acgctgagtg tggtttgccg atcctggcct tcccgtgtaa ccagttccgg 360
aagcaggagc caggagtaaa cgaagagatc aaagagttcg ccgcgggcta caacgtcaaa 420
ttcgatatgt tcagcaagat ctgcgtgaac ggggacgacg cccaccgct gtggaagtgg 480
atgaagatcc aacccaaggg caagggcacg ctgggaaatg ccatcaagtg gaacttcacc 540
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gagcccctgc ccacgcccty ggagccttcc accggcactc atgacggcct gcctgcaaac 720
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ctgctgggct tggctcggcg cccccaccc tggctacctt gtgggaataa acagacaaat 840
tagcaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 900
aaaaaaaaa aaaaaaa
917

```

<210> 30

<211> 577

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (501)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (534)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (568)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (575)

<223> n equals a,t,g, or c

<400> 30

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ggtgactcac atctgtaatc ccagcacttt gggaggccaa ggcaggcaga acacttgaag 120
gagttcaaga ccagcgtggc caacgtggtg aacctgtct ctactaaaaa tacaaaaatt 180
gttttagctct gtttttcata atagaaatag aaaaggtaaa attgcttttc ttctgaaaag 240
aacaagtatt gttcatccaa gaagggtttt tgtgactgaa tcagcagtgc ctgccctagt 300
catagctgtg cttcagaaac ctcagcatga ttagtgttkg agcmmaacaa ggragcaaag 360
caaawcwgt ttttgaaatt ctatctgttg cttgaaactat tttgtaataa ttaaactttg 420
gatgttgaga aatcacaaact ttattggtac acttcattgc aacttgaaat tccatgggtc 480
ttaaagtgag attggaattc naatgggcgg cctttaaaaa gtaattccca accnttaagg 540
ttaaacccca ggaaattggg gccaatcnaa aaccngg 577

```

<210> 31

<211> 2059

<212> DNA

<213> Homo sapiens

<400> 31

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cttcaagcag ggaagcccca gtgagtagct gcattcctag aaattgaagt ttcagrgcta 480
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tgaaggagga gtgcaaaaara gtgtccccc cctcctgccc ccgcaccgt ttgcccaccc 600
ttcgggaagac ccagtgtgtg gatgagtatg agtgtgcctg caactgtgtc aatccacagt 660
gagctgtccc cttgggtact tggcctcaac cgccaccaat gactgtggct gtaccacaac 720
cacctgcctt ccgacaagg tgtgtgtcca ccgaagcacc atctaccctg tgggcccagt 780
ctgggaggag ggctgcgatg tgtgcacctg caccgacatg gaggatgccg tgatgggcct 840
ccgcgtggcc cagtgtctccc agaagccctg tgaggacagc tgtcggtcgg gcttcaacta 900

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cgttctgcat gaaggcgagt gctgtggaag gtgcctgcc tctgcctgtg aggtgggtgac 960
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tgatgagacg ctccaggatg gctgtgatac tcacttctgc aaggtcaatg agagaggaga 1500
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ctgtgcctg ccttgctgga tggccaggcc agagtgtgc cagtcctctg catgttctgc 1980
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aaaaaaaaa aaaaaaaaaa 2059

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<210> 32

<211> 549

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (337)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (378)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (497)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (537)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (546)

<223> n equals a,t,g, or c

<400> 32

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tctagaggat ccaagcttac gtacgcgtgc atgcgacgtc atagctcttc tatagtgtca 180
cctaaattca attcaactggc cgtcgtttta caacgtcgtg actgggaaaa ccctggcgtt 240
acccaactta atcgccttgc agcacatccc cctttcgcca gctggcgtaa tagcgaagag 300
gcccgaccg attcgccctt tcccaacagt tgcgcancgt gaatggcgaa tggggacgcg 360
ccctgtatgg gcgcgttnaa gcgcggcggg tgtggtggtt acgcgcagtg gacccgctac 420
acttgccagc gccctagcgc ccgctccttt cgctttcttc ccttcctttc tcgccacgtt 480
cgccggcttt ccccttnaag ctctaaatcg gtgggctccc tttagggtgc ctatttngtg 540
ctttanggt 549
```

<210> 33

<211> 841

<212> DNA

<213> Homo sapiens

<400> 33

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gctttgaacc tcaacagcca gctgaacata cccaaagaca caagccaact gaagaaacat 60
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gcagccccac agaccatggg catgccaggt ggttgacta caatcccaga gtcagacctt 180
gaagaaagat cagtagaaca agactctaca gaactgttta ccaaccacag acatctcact 240
gcagagacac ccaggcctgt ttcaccctc caaggagtct cggaataatt ccaagtagag 300
ttgtttgggt gagaggaaca tccccatctc aaggccgaac ctgtgtgaac ctcatgcca 360
gcacagatat arggctggcg cagggtgctt cyaaaagctya ccttcctgga gatgacatgc 420
atagaaagag gggttgggac tttttacttc actaggagaa cttgtaacac catgggggag 480
tcagctgaaa cttgtcttgt tttgccagga aagggaagtag ttgcctttgg tcatccatct 540
gctaatagtc acagaataca gtgaaatgac atagttttgg gttagatttt ataatgcaa 600
gattcagatc caaaataatt tcatacccca ttttttcaca gaattcttat atagtaaatg 660
tatcaagttt aataaagcat ctcatgttca aataatatct tggattttat ttataattag 720
agggatttat gagtgtattc tctacattat ttcttcaaag gaaaggaaag gaattgaaga 780
ctttgctact ctctggttaag acttgaatgt gattatttta taaataaaag aaccactatg 840
a 841
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<210> 34

<211> 863

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (19)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (29)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (44)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (58)

<223> n equals a,t,g, or c

<400> 34

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accaaaaaag ctttggagnt ttccaaccnc cggtttgcgg ccngttttt tagaactnag 60
tggaatcccc cgggggcttt caaggaattc ggcacgagtt tgcttaggcg cagacgggga 120
agcggagcca acatgccagt gggccggagc tgggtttgtc gcaaaactta tgtgaccccg 180
cggagaccct tcgagaaatc tcgtctcgac caagagctga agctgatcgg cgagtatggg 240
ctccggaaca aacgtgaggt ctggagggtc aaatttaccg tggccaagat ccgcaaggcc 300
gcccgggaac tgctgacgct tgatgagaag gacccacggc gtctgttcga aggcaacgcc 360
ctgtgcggc ggctggtccg cattggggtg ctggatgagg gcaagatgaa gctggattac 420
atcctgggcc tgaagataga ggatttctta gagagacgcc tgcagacca ggtcttcaag 480
ctgggcttgg ccaagtccat ccaccacgct cgcgtgctga tccgccagcg ccataatcagg 540
gtccgcaagc aggtggtgaa catcccgtcc ttcattgtcc gcctggattc ccagaagcac 600
atcgacttct ctctgcgctc tccctacggg ggtggccgcc cgggccgctg gaagaggaag 660
aatgccaaag agggccaggg tggggctggg gctggagacg acgaggagga ggattaagtc 720
cacctgtccc tcctgggctg ctggattgtc tcgttttcct gccaaataaa caggatcagc 780
gctttacaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 840
aaaaaaaaaa aaaaaaaaaa ttt                                     863
```

<210> 35

<211> 1230

<212> DNA

<213> Homo sapiens

<400> 35

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tgcaggaatt cggcacgagc ccagcgccgc cgccatgtcc tccggggcta gcgcgagcgc 60
cctgcagcgc ttggtagagc agctcaagtt ggaggctggc gtggagagga tcaaggtctc 120
tcaggcagct gcagagcttc aacagtactg tatgcagaat gcctgcaagg atgccctgct 180
gggtgggtgtt ccagctggaa gtaacccctt ccgggagcct agatcctgtg ctttactctg 240
aagactctag gagagaagtt tgctgaggaa tgccttcaag cacaaagtga tgaatgactg 300
ccttcaagtc tcaagaaaac acttttccct aacttttaga gatatttcag cccttctctg 360
tggcctggtc ctatagccaa aatcacagat attcatgagt ttctacttga gtgagaaaac 420
tgggtgaagg aatagaattt taaatagtaa taactgcttg tttttttgt gcaagtactt 480
ttatacataa gataaataaa aaccttacca ccaaacatac caaaatgcac ctctttcata 540
agtgagttac taagatttct atacctggaa tatcatgtat gtttcattta ctggatgttt 600
acattttagg aagggaaaata gttytgttta tttaaacaaac tgaatactta taaactgttg 660
ttcctggaag ttattttatt cataaaaaat ttgttctttt ctcatgaatt tataattcct 720
aaatgaagac cagaaagtac aaattgctgg gaggaagaat aggctttatt aatcaactga 780
tgtcttgatt tttctaaatg ggaagattgc tttattttta aactaatta tgggagcaga 840
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gtatataaat gaagcagatt tgatttttgt attcttacgt ttctctgctt tgtagttgtg 960
gctgtactta aagaaataca gaatttcata tatttaaaaa tgtttaaaaat gtgaccacac 1020
gaacattgta aatgattaaa aactaacatg aaaatattac aacctaaaaa aattcttaac 1080
ttcacaagtg ttttacttcg acgatgtgcc tttgatttaa tttgggacac ttttttagaa 1140
ggatacatta ttcgtgtttg caacggtcct tgaagagcct ggaaataaaa tttctgctta 1200
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attaatcatt tttctatgac agcaaaaaaa

1230

<210> 36

<211> 640

<212> DNA

<213> Homo sapiens

<400> 36

caacccaaat cgctcactat agggaaagct ggtcgctgc aggtaccggt ccggaattcc 60
cgggtcgacc cagcggtccg gctgtctgaa gatagatcg catcatgaac gacaccgtaa 120
ctatccgcac tagaaagttc atgaccaacc gactacttca gaggaacaa atggtcattg 180
atgtccttca ccccggaag gcgacagtgc ctaagacaga aattcgggaa aaactagcca 240
aaatgtacaa gaccacaccg gatgtcatct ttgtatttgg attcagaact cattttggtg 300
gtggcaagac aactggcttt ggcatgattt atgattccct ggattatgca aagaaaaatg 360
aacccaaaca tagacttgca agacatggcc tgtatgagaa gaaaaagacc tcaagaaagc 420
aacgaaagga acgcaagaac agaatagaaga aagtcagggg gactgcaaag gccaatgttg 480
gtgctggcaa aaagccgaag gagtaaaggt gctgcaatga tgtagctgt ggccactgtg 540
gatttttcgc aagaacatta ataaactaaa aacttcaaaa aaaaaaaaaa aaaaaaaaaa 600
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaagg 640

<210> 37

<211> 597

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (32)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (556)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (558)

<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (567)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (590)
<223> n equals a,t,g, or c

<400> 37
ggtgagaccn tctanaatat ggttccccgg gntgccgatt cgccaagggtg ctccggtcctt 60
ccgaggaagc taaggctgcg ttgggggtgag gccctcactt catccggcga ctaccaccgc 120
gtccggcagc gccagcccta cactcgcccc cgccatggcc tctgtctccg agctcgctg 180
catctactcg gccctcattc tgcacgacga tgagggtgaca gtcacggagg ataagatcaa 240
tgccctcatt aaagcagccg gtgtaaatgt tgagcctttt tggcctggct tgtttgcaaa 300
ggccctggcc aacgtcaaca ttgggagcct catctgcaat gtaggggccg gtggacctgc 360
tccagcagct ggtgctgcac cagcaggagg tcctgcccc tccactgctg ctgctccagc 420
tgaggagaag aaagtggaag caaagaaaaga agaatccgag gagtctgatg atgacatggg 480
ctttggtctt ttgactaaa cctcttttat aacatgttca ataaaaagct gaactttaaa 540
aaaaaaaaaa aaaaancncg ggggggnccg ctttaaaagg tccaagttaa gtacggg 597

<210> 38
<211> 624
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (79)
<223> n equals a,t,g, or c

<400> 38
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ggggcgcgcg agctcgcgnt ctctctgacc cccgakectg gggccgaggc gaaggagggtg 120
gaggagacca tcgagggcat gctcctcagg ctggaagagt ttgagcagct ggctgacctg 180
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acagaaatgc gtggcatcta tgccaaagtg gaccggctag aggccttcgt caagatgggt 300
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camctgsacc kgtgcccggt acgtacgagc tgcccacact gtataggacg gaggactatt 480
ttcctgtgga cgccgggkaa gcacagcamc amccccgcac ctgccctcgg cctttgtgag 540
ctttgtggtc ttcccatcag gaacactgga aagtgcatt gtgtacacgc tgcagcttgg 600
gggttttttc tttgtattgc tggt 624

<210> 39
<211> 1029
<212> DNA
<213> Homo sapiens

<400> 39
ggccccctga gggatcctct agagcggccg ccgactagtg agctcgtcga cccgggaatt 60

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ctcctgcaag gactgcaaga rtttccctcc gcagctctga rtctccactt ttttggtgga 180
gaaaggctgc aaaaagaaaa agagacgcag tgagtgggaa aagtatgcat cctattcaaa 240
cctaattgaa tcgargarcc cagggacaca cgccctcagg tttgctcarg gggtcatatt 300
tggtgcttag acaaattcaa aatgaggaaa catcggcact tgcccttagt ggccgtcttt 360
tgccctctttc tctcaggctt tcctacaact catgccagc agcagcaagc agtcattgaa 420
gtcaacaaga gagacatagt cttcctggtg gatggctcat ctgactggg actggccaac 480
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acccatccaa caaaaagggr agtcataacc gctgtgcgga aaatgaagcc cctggamggs 660
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gccggctacc gggctgccga ggggattcct aagcttttgk tgctgatcac aggtggtaag 780
tccctagatg aaatcagcca gcctgccag gagctgaaga gaagcagcat aatggccttt 840
gccattggga acaagggtgc cgatcaggct gagctggaag agatcgcttt cgactcctcc 900
ctggtgttca tcccagctga gttccgagcc gcccattgc aaggcatgct gcctggcttg 960
ctggcacctc tcaggaccct ctctggaacc cctgaagttc actcaaaaaa aagggatatc 1020
atctttctg 1029

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<210> 40

<211> 1107

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1098)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1106)

<223> n equals a,t,g, or c

<400> 40

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gaaaactgcg agccagcatt acccccggga ccattctgat catcctcact ggacgccaca 180
ggggcaaggt gagagtacct gtgcttgggg cgcttcactg cagctgcctg gggcgcttg 240
tggaatgcg tttgcacgct aggtgtactt ttcctttatt tacctatggt tggggcaagg 300
ggaaatgatc tgcaagatac aacttagttg ttgcaaataa gaagtgtaat ccatgggtgat 360
ttattagcca tttcctgctg ttgatwatgt tacacatgty catttactca aaaacgtggt 420
tatgtctgga gtactacctt agtagcttgc tgtggttgct tccagaactg ccgagctgta 480
tacatatata tgtagaaatt tccttaccm aatttagatg cctgtgawtt tawgaatcag 540
aagycagttt taawtgcmga aaacyaatta ttytctttt amcttacaag agggtggttt 600
tcctgaagca gctggctagt ggcttattac ttgtgactgg acctctggtc ctcaatcgag 660
ttcctctacg aagaacacac cagaaatttg tcattgccac ttcaacaaa atcgatatca 720
gcaatgtaaa aatcccaaaa catcttactg atgcttactt caagaagaag aagctgcgga 780
agcccagaca ccaggaaggt gagatcttcg acacagaaaa agagaaatat gagattacgg 840
agcagcgcaa gattgatcag aaagctgtgg actcacaat tttacaaaa atcaaagcta 900
ttcctcagct ccagggtac ctgcgatctg tgtttgctct gacgaatgga atttatctc 960
acaaattggt gttctaataa tcttaagaac ctaattaaat agctgactac aaaaaaaaaa 1020

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aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa ccccgggggg 1080
 gggcccggtt cccatttngc cctttng 1107

<210> 41

<211> 1051

<212> DNA

<213> Homo sapiens

<400> 41

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 tgtggctgct ggtgaaaagc ttctccgaga gtggaatcaa ctatgaaatt ataatcatag 180
 atgatggaag ccagatgga acaagggatg ttgctgaaca gtgggagaag atctatgggt 240
 cagacagaat tcttctaaga ccacgagaga aaaagttggg actaggaact gcatatattc 300
 atggaatgaa acatgccaca ggaaactaca tcattattat ggatgctgat ctctcacacc 360
 atccaaaatt tattcctgaa tttattagga agcaaaagga gggtaatttt gatattgtct 420
 ctggaactcg ctacaaagga aatggaggtg tatatggctg ggatttgaaa agaaaaataa 480
 tcagccgtgg ggccaatttt ttaactcaga tcttgctgag accaggagca tctgatttaa 540
 caggaaagtt cagattatac cgaaaagaag ttctagagaa attaatagaa aaatgtgttt 600
 ctaaaggcta cgtcttcag atggagatga ttgttcgggc aagacagttg aattatacta 660
 ttggcgaagt tccaatatca tttgtggatc gtgtttatgg tgaatccaag ttgggaggaa 720
 atgaaatagt atctttcttg aaaggattat tgactctttt tgctactaca taaaagaaag 780
 atactcattt atagttacgt tcatttcagg ttaaacaatga aagaagcctg gttactgatt 840
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 tatgaagacc acctatttta ttttcaaat taaataattt taaagttgct ggcctaata 960
 gcaatgttct caattttcgt tttcattttg ctgtattgag acctataaat aaatgtatat 1020
 ttttttttgc ataaarwaaa aaaaaaaaac c 1051

<210> 42

<211> 2192

<212> DNA

<213> Homo sapiens

<400> 42

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 aggctgggtc cctggtgct actggtttcc ctggtgctgc tggccgagtc ggtcctcctg 180
 gcccctctgg aaatgctgga cccctggcc ctcttggtcc tgctggcaaa gaaggcggca 240
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 gaggagagag aggtctccct ggtcttctct gcccctctgg tgaacctggc aaacaaggtc 480
 cctctggagc aagtggtgaa cgtggtcccc ctggtcccat gggccccct ggattggctg 540
 gacccctgg tgaatctgga cgtgagggg ctctggtgc cgaagttccc ctggacgaga 600
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 tgaacaagg cctctgag cctctggtcc tgctggtccc cgaggtcccc ctggtctgc 960
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tcgcggctgc actggtgatg ctggtcctgt tgggtccccc ggccctcctg gacctcctgg 1080
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gaaggctcac gatggtggcc gctactaccg ggctgatgat gccaatgtgg ttcgtgaccg 1200
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tgaatacaaa accaccaaga cctcccgcct gcccatcatc gatgtggccc ccttggaagt 1860
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ttggaaaata tttttttcct ttgcattcat ctctcaaact tagtttttat ctttgaccaa 2100
ccgaacatga ccaaaaacca aaagtgcatt caaccttacc aaaaaaaaaa aaaaaaaaaa 2160
actcgggggg ggcccggtac caattggcct aa 2192

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<210> 43

<211> 353

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (348)

<223> n equals a,t,g, or c

<400> 43

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ccgggtcgac ccacgcgtcc ggtggggctt caccaagttc aatgctgatg aatttgaaga 120
catggtggct gaaaagcggc tcacccaga tggctgtggg gtcaagtaca tcccagtcg 180
tggccctctg gacaagtggc gggccctgca ctcatgaggg cttccaatgt gctgcccccc 240
tcttaatact caccaataaa ttctacttcc tgtccaaaaa aaaaaaaaaa aaaaaaaaaa 300
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaanaa aag 353

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<210> 44

<211> 3490

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (782)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1311)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2298)

<223> n equals a,t,g, or c

<400> 44

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```

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```

<210> 45

<211> 781

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (750)

<223> n equals a,t,g, or c

<400> 45

```

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atcagatgga gggtaggggc tgcccagcaa atgtcagtgt gtgtcaacat ttactgcagg 180
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gtcattcact taccaagtat ttctctgctt tctgccatgt cacgggscca tgatcccctg 360
gagattgagg gaaataagat cacaggagct cccagtctga gtgagaaaag gcagctgctc 420
tgtggtagct tgcaactggc ctgggaatgg cctaaggaga caagcattga gggctgagct 480
cagaagccag ggagaagagc tcagaacccc aggagaggag ctcaagaacc tgggagagga 540
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t                                             781

```

<210> 46

<211> 1431

<212> DNA

<213> Homo sapiens

<400> 46

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caaaccataa aaccttatac aagttgttct agtaacaata catgagaaag atgtctatgt 1380
agctgaaaat aaaatgacgt cacaagacaa aaaaaaaaaa aaaaaaaaaa a 1431
```

<210> 47

<211> 1913

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (43)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1878)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1896)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1905)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1907)

<223> n equals a,t,g, or c

<400> 47

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tytagaggcc rycaaattgg caatwgaagc yggsttcrc catattgatt ctgcwcatkt 240
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cctggaatct ttggatgtgt gccagttca cagattggac cctattgggt tgtgggtggg 1860
ccagggcac caaagacntc attggactaa ttcacnttcc cccgnanagc ccc 1913

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<210> 48

<211> 1761

<212> DNA

<213> Homo sapiens

<400> 48

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acagcatcta tggccagat ggggcccctt tctacaacta cctgggccc gaggacaccg 180

```

```

tccctgagcc tgccttcccc aacacagccg gtcactcagc ggaccgcaca cccatccttg 240
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aaaaaaaaaa aaaaaaaaaa g
1761

```

<210> 49

<211> 956

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (352)

<223> n equals a,t,g, or c

<400> 49

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gccggagcag atcatgaagt ccatcatccc agtgggtcatg gctggcatca tngycatcta 360
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```

```

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wmcgkcccgt ggccctgcgc ggagctgtgt ccaataaagt tcttgatgt gaaaaa 956

```

<210> 50

<211> 563

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (510)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (519)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (530)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (558)

<223> n equals a,t,g, or c

<400> 50

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gccacaccgc cgctgcctca gtcctgccga agcacgagtt ctctgtggac atgacctgtg 120
gaggctgtgc tgaagctgtc tctcgggtcc tcaataagct tggaggagtt aagtatgaca 180
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gtccccacag cccacaggat ggaccaaagg gggcaggatg ctgatecctc cgctggcttc 360
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tccattcat ccggcctnaa aaa 563

```

<210> 51

<211> 3215

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3196)

<223> n equals a,t,g, or c

<400> 51

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agggccattt agattaggaa ggtttttaag atccgcaatg tggagcagca gccactgcac 240
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acaattaagg tcaagcccag aaagtataa gtgcaggagg gaaaagtga agtccattat 540
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tgtaacactt ggctcttggt acctgtgggt tagcatcaag ttctccccag ggtagaattc 2700
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cagatgtttt gatgttatcg cttatgttaa tagtaattcc cgtacgtgtt cattttatct 3120
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<210> 52

<211> 626

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (571)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (572)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (573)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (618)

<223> n equals a,t,g, or c

<400> 52

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accatgcctg agggtaacaat cgtgtgctgc ctggaggaga agcctggaga ccgtggcaaag 120
ctggcccggg catcaggga ctatgccacc gttatctccc acaaccctga gaccaagaag 180
acccgtgtga agctgccctc cggctccaag aaggttatct cctcagccaa cagagctgtg 240
gttgggtgtg tggttgagg tgccgaatt gacaaaccca tcttgaaggc tggccgggcg 300
taccacaaat ataaggcaa gaggaactgc tgccacagag tacggggtgt ggccatgaat 360
cctgtggagc atccttttg aggtggcaac caccagcaca tcggcaagcc ctccaccatc 420
cgcagagatg cccctgctgg ccgcaaagt ggtctcattg ctgcccggcg gactggacgt 480
ctccggggaa ccaagactgt gcaggagaaa gagaactagt gctgagggcc tcaataaagt 540
ttgtgtttat gccaaaaaaa aaaaaaaaaa nnnngggggc cgctttarag rwtcctccaa 600
ggggccaact tacccttnca tgcaaa 626

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<210> 53

<211> 920

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (617)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (621)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (725)
<223> n equals a,t,g, or c

<400> 53
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ctctgtact atgatcccaa ttcagatgct gacagtgaac ccgtgaaggc agcaaagggtg 120
tgaaaactcg cagagtcctg gtgggtgagc agcagcagtg ccasgatgcc aagagccagc 180
agaaggagca gatgttgctg ctggagaaka agagtgtctg ttactcccag gtgcttctcc 240
gctgcctcac tttgtctcag aggcttcttc aagaacaccg gctgaagact caatccgagc 300
tagaccgcat caatgcccag tacctggaag tcaagtgcgg tgctatgata ctttaagctga 360
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gtctgattag ggaccgtttg gagggagcca ttcacctaca ggagcaggac atggagaact 480
caagacaggt cctgaactcc tatgaggtcc ttggggagga gtttgacagg ctggtgaaag 540
agtacaccgt actcaagcag gcaacagaga acaagcgggtg ggccctccag gagttcagca 600
agggtctaccg ttgagntcgt ncagggccag gagacatggc ttctgcatag ctgctgcctc 660
ctaattctcc tgctagtggg accaccttca cctggggctg ccttcagtac aagggagtggt 720
ggaanatstt acgcttgaaa cactgcagtc atttaggcac tctcctgggt tctctttatt 780
ttttatgact gggcctcttc tggaaaatct agcaaggaga tttatataat ttttatgcat 840
agctgtgtgt cagtgtcagc cctgtattgt atttgattat ctctgaata aagttatgat 900
attawaaaaa aaaaaaaaaa 920

<210> 54
<211> 1090
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1024)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1034)
<223> n equals a,t,g, or c

<400> 54

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gagtaaccca gaaatgatgt tgcatttttt gctttacctg ataattgaaa ctttcaacaa 60
tctctggagt gactttttct cctcgaattg aaacaagtct atggcaaaaag aagctgcatt 120
tttttcacaa aagggaagat ggtaacaatg gtcacttcaa acttttgggc taaattatat 180
gtacacagaa atgttcaaaa tcatagtttt aatgtgtttt gaaaaggcca cacaattata 240
ctttatcttt tcttaataat cctgcaaatc tctgccctgg aatccgaaat ctgaaaatgt 300
actggcttga acaaaatttg ttttgtgtgt tagagttata aatcattaat ctttatttctg 360
gggtggtttac gtttatgcca gttcctttat atttaaatat cttgttttat atattttgaa 420
tgtctttata gatttcttta aatttcctta tagaaccatt aatagaaaat cattacattt 480
aaaatatacc ttacagcaaa agcatccaaa taagtatagg gtttatgtcc ttatttttct 540
ttcagctgaa tacgaatgaa cacagtgggt gaatttctga agggaagtga tgaaattata 600
tttatttcag tgggcacttt tccattttac cactgtacca ttatttggtt cctggagtta 660
tacactaatt ttcagtatat tactgttaaa ttaccaacac aaggcaattt atttgaaaga 720
ttccgtttat cctgccattg ctttgaagag cagcaggaaa cgaaatcctt tgacttgtat 780
cagcttctgc agagcatctt tgttttcctt tgtcctttgt ttcctacctt ttgaatcaga 840
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aattgcatga agtggattga tcatgagcaa atgatgtgct tatttctccc tcaactgttg 960
atatctttga acttgctgtt ttcaatatgg gcagcacaaa ggtgagagat acatatatt 1020
agtngtatgt attnctctta tacattagat acctatattt aaatgaaagg gccaatattgt 1080
aaacatatac                                     1090
```

<210> 55

<211> 1464

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (766)

<223> n equals a,t,g, or c

<400> 55

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gacgctctca gctctcgcg cagggccag cttccttcaa aatgtctact gttcacgaaa 120
tcctgtgcaa gctcagcttg gaggtgatc actctacacc cccaagtga tatgggtctg 180
tcaaagccta tactaacttt gatgctgagc gggatgcttt gaacattgaa acagccatca 240
agaccaaagg tgtggatgag gtcaccattg tcaacatttt gaccaaccgc agcaatgcac 300
agagacagga tattgccttc gcctaccaga gaaggaccaa aaaggaaact gcatcagcac 360
tgaagtcagc cttatctggc cacctggaga cggtgatttt gggcctattg aagacacctg 420
ctcagtatga cgcttctgag ctaaaagctt ccatgaaggg gctgggaacc gacgaggact 480
ctctcattga gatcatctgc tccagaacca accaggagct gcaggaaatt aacagagtct 540
acaaggaaat gtacaagact gatctggaga aggacattat ttcggacaca tctggtgact 600
tccgcaagct gatggttgcc ctggcaaagg gtagaagagc agaggatggc tctgtcattg 660
attatgaact gattgaccaa gatgctcggg atctctatga cgctggagtg aagaggaaaag 720
gaactgatgt tcccaagtgg atcagcatca tgaccgagcg gagtgncccc acctccagaa 780
agtatttgat aggtacaaga gttacagccc ttatgacatg ttggaaagca tcaggaaaga 840
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cctgtatttt gctgatcggc tgtatgactc catgaagggc aaggggacgc gagataaggt 960
cctgatcaga atcatggtct cccgcagtga agtggacatg ttgaaaatta ggtctgaatt 1020
caagagaaaag tacggcaagt ccctgtacta ttatatccag caagacacta agggcgacta 1080
ccagaaaagcg ctgctgtacc tgtgtggtgg agatgactga agcccagacac ggctgagcg 1140
```

```

tccagaaatg gtgctcacca tgcttcacgc taacaggtct agaaaaccag cttgcgaata 1200
acagtcctcg tggccatccc tgtgaggggtg acgttagcat tacccecaac ctcatttttag 1260
ttgcctaagc attgcctggc cttcctgtct agtctctcct gtaagccaaa gaaatgaaca 1320
ttccaaggag ttggaagtga agtctatgat gtgaaacact ttgcctcctg tgtacttgtg 1380
cataaacaga tgaataaact gaatttgtac tttaaaaaa aaaaaaaaaa aactyrgggg 1440
ggggcccgka cccattggcc ttag                                     1464

```

<210> 56

<211> 985

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (647)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (875)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (962)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (973)

<223> n equals a,t,g, or c

<400> 56

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agaagtgtct agtgttcaat gcagctgggg tgaaacccca ggggcaaggt ggctggcttt 60
gatctggacg ggacgctcat caccacacgc tctgggaagg tctttccac tggccccagt 120
gactggagga tcttgtacct agagattccc cgtaagctcc gagagctgga agccgagggc 180
tacaagctgg tgatcttcac caaccagatg agcatcgggc gcgggaagct gccagccgag 240
gagttcaagg ccaagggtgga ggctgtggtg gagaagctgg gggccccctt ccagggtgctg 300
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gagcaggcca acgacggcac gcccatatcc atcggggaca gcatctttgt gggagacgca 420
gccggacgcc cggccaactg ggccccgggg cggaagaaga aagacttctc ctgcgccgat 480
cgctgtttg ccctcaacct tggcctgccc ttcgccacgc ctgaggagtt ctttctcaag 540
tggccagcag ccggcttcga gctcccagcc ttgatccga ggactgtctc ccgctcaggg 600
cctctctgcc tccccagtc cagggccctc ctgagcgcca cccggangtg gttgtcgag 660
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cagccctgaa gcaagggaaa cgggtcgcca tcgacaacac aaaccagac gccgcgagcc 840
gcgccaggta cgtccartgt gcccgagccg cgggngtacc cctgccgctg cttcctcttc 900
accgccactc tggagcaggc gcgccacaac aaccgggtga gcccgcttca gcccgggaca 960
cnccccgggg atngcaccac ctgga                                     985

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<210> 57
<211> 1246
<212> DNA
<213> Homo sapiens

<400> 57
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gccattggaa ggggcatatg tgtgttgctg ggtatttccc tggaggatac gcagaaggaa 180
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ctccagtgtg tcctgaaggg aaacaagcct gatttccacc tagcaatgcc cacggagcag 360
gcagaggggt tctacaacag cttcctggag cagctgcgta aaacatacag gccggagctt 420
atcaaagatg gcaagtttg ggcctacatg cagggtgcaca ttcagaatga tgggcctgtg 480
accatagagc tgggaatcgcc agctcccggc actgctacct ctgacccaaa gcagctgtca 540
aagctcga aaacagcagca gaggaagaa aagaccagag ctaagggacc ttctgaattc 600
aagcaaggaa agaaacactc cccgaaaaga agaccgcagt gccagcagcg gggctgaggg 660
cgacgtgtcc tctgaacggg agccgtagct caggaggcag aattcagtgt gttatcattg 720
ggcagaactg gatcctgaaa aattcaagat gctaagcacc taccactactt taagaatttg 780
gaactgaaac atgaagagga agacagaaat aagaatttg gaacctgaat agctctgcaa 840
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gcactkccsg tgggccaggg ggcgggtgcg catgtggtag aaggtgtgcg ctctgtgcctc 960
ccccacagaa aggttttgtt gggttctacc acatcttgcc ttgcttttg aacaggtctg 1020
ccccagcatc atttgtcatc aagtccactg tgggtgtattc tgcgtgtcca tggcgggggt 1080
tctccaayac actcacactg tccatgttct ttttattgcc agggcccgtg ttgaagtgtc 1140
aagagagcaa tcatcaatga taatgtattg tgtgagacct ttgcatcttg taaattttct 1200
cttttttcta aaaataaata ataataaaat cctaaatctc aacaaa 1246

<210> 58
<211> 1966
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1926)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1942)
<223> n equals a,t,g, or c

<400> 58
gggagaaaga tccttcactc acagaaccag ttattagggg gttaatgaaa ttttggccta 60
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tgaaccttca caatttgtaa aaatccaaga acctttgttt aaacaaatcg ccaagtgtgt 180
atctagcccc cattttcagg tggcagaaag agcactctat tattggaata atgaatacat 240
catgagtttg atagargaaa actctaactg catccttccc atcatgtttt ccagccttta 300
taggatttca aaagaacatt ggaatccggc tattgtggcg ttggtgtaca atgtgttgaa 360
ggcatttatg gaaatgaaca gcaccatgtt tgacgagctg acagccacat acaagtcaga 420

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tcgtcagcgt gagaaaaaga aagaaaagga gcgtgaagaa ttgtggaaaa aattggagga 480
tctggagtta aagagaggtc ttagacgtga tggaataatt ccaacttaac aaaaacaatg 540
acaacaacat tactaacctg tggagtcaca cgtttatgta gtagaagatg gagcaacagt 600
tttctgtatt gtgcaacttt acagtagatt tcacctttgt ttcattatta cagcagcact 660
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gaaaaaaca acatgttaca gtgttttttg tagattctcg ttctatatct catcacagcg 1620
ccagccctgt ttttagccgg aaaggattca ggataaacat tattatgcat tctgaattgg 1680
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caaagggtgca tcgtgaccaa attgtttaaa aaaaaaaaac aaaaaaaaca aaatctaggg 1860
ctgtatttta tatatatata tatatatata tatatatata tatatatata tatatatgtc 1920
cttatnggac tctctgcttt gntattttaa taaaaaatct tacatc 1966

```

<210> 59

<211> 1611

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<400> 59

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aaggtagagt caattatgaa gaggacagct ttggtagcca atacctcaa tatgcctgtt 120
gctgctagag aagccyctat ttatactgga atcacactgt cagagtactt ccgtgacatg 180
ggctatcatg tcagtatgat ggctgactct acctctagat gggctgaggc cttagagaaa 240
tctctggtcg tttagctgaa atgcctgcag atagtggata tccagcctat cttggtgccc 300
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aacgtaagca tttcccctct gtcaattggc tcatcagcta cagcaagtat atgcgtgcct 540
tggtatgaata ctatgacaaa cacttcacag agttcgttcc tctgaggacg aaagctaagg 600
aaattctgca ggaagaagaa gacctggcag aaattgtaca gcttggtgga aaggcttctt 660
tggcagaaac agataaaaac actctggagg tagcaaaact tatcaaagat gatttcctac 720
aacaaaatgg atatactcct tatgacaggt tctgccatt ctacaagaca gtagggatgc 780

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```

tgtccaacat gattgcattt tatgatatgg ctcgtagagt gtttgaaacc actgcccaga 840
gtgacaataa aatcacatgg tccattattc gtgagcacat gggagacatc ctctataaac 900
tttcctccat gaaattcaag gatccactga aagatgggta ggcaaagatc aaaagcgact 960
atgcacaact tcttgaagac atgcagaatg cattccgtag ccttgaagat tagaagcctt 1020
gaagattaca actgtgattt ccttttcctc agcaagctcc tatgtgtata ttttcctgaa 1080
tttctcatct caaacctttt gcttctttat tgtgcagctt tgagactagt gcctatgtgt 1140
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gtgttgtgaa gggcctccct cttcctttat ctgaagtggg gaatatagta aatatacatt 1260
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tttggaatgg aaggccaggt ttctataact tttgaacagg tactttgtga aatgactcaa 1440
tttctattgt ggtaagctca ttggcagctt agcattttgc aaaggaattg ctttgcagga 1500
aatattttaa tttcaaaaac ataattgatta atgttccaat tatgcatcac ttccccagk 1560
ataaaycagg aatgkttgtg agaaaccatt gggaactata ctctttttta a 1611

```

<210> 60

<211> 1849

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (100)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (977)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1846)

<223> n equals a,t,g, or c

<400> 60

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gtccggttca atggcgactg cggaagctag cggcagcgan tgggaaaggg caggaagtcg 120
agacctcagt cacctattac cggttgagg aggtggcaaa gcgcaactcc ttgaaggaaac 180
tgtggcttgt gatccatggg cgagtctacg atgtcaccgg cttcctcaac gagcaccctg 240
gaggagaaga ggttctgctg gaacaagctg gtgtagatgc aagtgaagac tttgaagatg 300
taggacactc ttctgatgcc agagaaatgc taaagcagta ctacattggg gatatccatc 360
cgagtgcact taaacctgaa agtggttagca aggacccttc aaaaaatgat acatgcaaaa 420
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<210> 61

<211> 233

<212> DNA

<213> Homo sapiens

<400> 61

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tattattccc ttgactcac taattacact gctggaatat aaagaaatga tcctaaatat 180
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<210> 62

<211> 2333

<212> DNA

<213> Homo sapiens

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<221> misc feature

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<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (14)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2327)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2331)

<223> n equals a,t,g, or c

<400> 62

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<210> 63

<211> 1470

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1410)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1414)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1419)

<223> n equals a,t,g, or c

<400> 63

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<210> 64

<211> 939

<212> DNA
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 <223> n equals a,t,g, or c

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 <223> n equals a,t,g, or c

<220>
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 <222> (11)
 <223> n equals a,t,g, or c

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<210> 65
 <211> 2068
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (308)
 <223> n equals a,t,g, or c

<400> 65
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<210> 66

<211> 1391

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (20)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (25)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (27)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1343)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1358)
<223> n equals a,t,g, or c

<400> 66
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<210> 67
<211> 659
<212> DNA
<213> Homo sapiens

<220>
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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (475)
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<220>
<221> misc feature
<222> (585)
<223> n equals a,t,g, or c

<400> 67
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<220>
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<220>
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<222> (2948)
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<400> 68
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<210> 69

<211> 603

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature
 <222> (584)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (590)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (595)
 <223> n equals a,t,g, or c

<400> 69
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 gccgccattt catctgtcct cattctctgc gcctttcgca gagcttccag cagcgggtatg 120
 ttgggccaga gcatccggag ttcacaacct ctgtggtccg tagagccact atgaggaggg 180
 ccctgggaag aatttgccat tttcagtgkg taaggggcac ggcttcgttg ggggaggggg 240
 cgcttggtg tgactcgcgc acctgcaagg ccgcctccgg gctgtggcgt gggagatgat 300
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 agctgggcat cctagcgcgt accgctaaag gaatgggcag gtagatccgg aagccctgcc 420
 tccatcagcc acctgacgcc cctcccccg ccccgagaa agccctgaga tggcyccggg 480
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 agc 603

<210> 70
 <211> 1101
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (195)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (1080)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (1081)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (1090)
 <223> n equals a,t,g, or c

<400> 70

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tggggcacat gccttggtatt tgaagagctt tcaactgctga ttagtggaga gtgcttatta 300
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atggaaggat ataagtatcc agtatatggt gtccagtggc atccagagaa agcaccttat 600
gagtggaaaga atttggatgg catttcccat gcacctaatg ctgtgaaaac cgcattttat 660
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gaagaggaga aagcattgat ttatcagttc agtccaattt atactggaaa tatttcttca 780
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acattagata attaaatagt gagacataaa tagagtgttt ttcattggaaa agccttctta 1020
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nctcggtcgn caagggaatt c 1101

```

<210> 71

<211> 714

<212> DNA

<213> Homo sapiens

<400> 71

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ggcagagaaa ctgtggcggg atagttttcg ggtccttgtc cagtgaacac cctcggctgg 60
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gacagtgttc caggcactta cagaaaagtg gtggtctgct gagccccag aaagggtgctt 180
ggttcttcca cctctgccac taattcgaca tcagtttcat cgaggaaaga gcatgtcctt 240
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cgtctccttg tttaccctgg tattctagaa tgtaaattha cataaatgtg tttgttccaa 360
ttagctttgt tgaacaggca tttaattaaa aaatttaggt ttaaatttag atgttcaaaa 420
gtagttgtga aatttgagaa tttgtaagac taattatggt aacttagctt agtattcaat 480
ataatgcatt gtttggtttc ttttaccaaa ttaagtgtct agttcttgct aaaatcaagt 540
cattgcattg tgttctaatt acaagtatgt tgtatttgag atttgcttag attggtgtac 600
tgctgccatt tttattggtg tttgattatt ggaatggtgc catattgtca ctcttctac 660
ttgctttaaa aagcagaggt agatttttgc acattaaaaa attcagtatt aatt 714

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<210> 72

<211> 2890

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (555)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2853)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2882)
<223> n equals a,t,g, or c

<400> 72

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gtcttcatca gcatcggttc tgccctgggc ttcaaatacc cgggtgggaa caaccagacg 180
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<210> 73

<211> 2488

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (277)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (446)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2382)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2412)

<223> n equals a,t,g, or c

<400> 73

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```

<210> 74

<211> 711

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (696)

<223> n equals a,t,g, or c

<400> 74

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tcccaccgat gtccctcagc ttccacttac cctccaggag aatgaagaat ccctccattg 180
ttggagtccct gtgcacagat tcacaaggac ttaactctgg ttgccgagg accctgtcag 240
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aattgcttcc taatgctcta tggaccgact atcaagatat tagtaagaaa ggatcatgtt 600
ttgaagcagc aggtccaggt cactttgtat atagaatttt gctgtattca ataatctgt 660
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<210> 75
<211> 906
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (362)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (889)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (894)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (897)
<223> n equals a,t,g, or c

<400> 75
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cttaca 906

<210> 76

<211> 271

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (36)

<223> n equals a,t,g, or c

<400> 76

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aaaacaaaac cctctgtatc attatgtgaa caacgggtgca aaaaagagga gacacagttt 180
acccatgggt agctaactat gatagtgaat gttgccttga accttgtttt agaaaaatgg 240
caagtgtggg tctcactctt ctagttcctg a 271

<210> 77

<211> 673

<212> DNA

<213> Homo sapiens

<400> 77

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acccttacgg agaacgagct gaagttccac tacatgggtgc acacatctct ggacgtggtg 180
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gaccgcatcc agtccagggc ctttgataac atggtgacgt cgatgatgat acaggtgtgc 480
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ggggggggcc cgg 673

<210> 78

<211> 367

<212> DNA

<213> Homo sapiens

<400> 78

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<211> 1344

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<213> Homo sapiens

<220>

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<222> (1319)

<223> n equals a,t,g, or c

<400> 79

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1344

<210> 80

<211> 3748

<212> DNA

<213> Homo sapiens

<400> 80

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<210> 81
<211> 1891
<212> DNA
<213> Homo sapiens

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<220>
<221> misc feature
<222> (1869)
<223> n equals a,t,g, or c

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<220>
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<222> (1879)
<223> n equals a,t,g, or c

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<210> 82

<211> 1954

<212> DNA

<213> Homo sapiens

<400> 82

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<210> 83

<211> 936

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (895)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (930)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (936)

<223> n equals a,t,g, or c

<400> 83

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<210> 84

<211> 1513

<212> DNA

<213> Homo sapiens

<400> 84

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<210> 85

<211> 1298

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3)

<223> n equals a,t,g, or c

<400> 85

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<210> 86

<211> 2009

<212> DNA

<213> Homo sapiens

<220>
<221> misc feature
<222> (1955)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1959)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2008)
<223> n equals a,t,g, or c

<400> 86
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tgatggtgga cagtctggtg gaacaggaga tccagacatc agtagcaact ctggatgaaa 480
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<210> 87
<211> 534
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (466)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (477)
<223> n equals a,t,g, or c

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<221> misc feature
<222> (526)
<223> n equals a,t,g, or c

<400> 87
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<210> 88
<211> 4302
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (1015)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4270)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (4274)
<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (4296)

<223> n equals a,t,g, or c

<400> 88

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ggcagaagaa atccagacta gtagaccaca aaccataact gaacaagact ctaacaagaa 180
ttcttcaaca gcagaaatta acgaaacaac aacctcatct actgattttc tggctagagc 240
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ggaaaaacat cctgagggtgc caagcgctaa agctgttact gctgatggat tcccaacagt 480
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<210> 89

<211> 2782

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (82)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (743)

<223> n equals a,t,g, or c

<400> 89

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2782

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<210> 90

<211> 1037

<212> DNA

<213> Homo sapiens

<400> 90

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aatgaaatta tatagattag atctcagtat ttaaactgtt cctcaatttt gtgaggctgt 180
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<210> 91

<211> 1052

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (962)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (965)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1044)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1048)

<223> n equals a,t,g, or c

<400> 91

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gatgttctct ctccacagct gaaagatgaa aattctaagc tgagaagaaa gctgaatgag 180
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cgattataag cttaggcact tggnccgngg tt 1052

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<210> 92

<211> 1234

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1115)

<223> n equals a,t,g, or c

<400> 92

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<210> 93

<211> 1571

<212> DNA

<213> Homo sapiens

<220>
<221> misc feature
<222> (1497)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1516)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1530)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1546)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1571)
<223> n equals a,t,g, or c

<400> 93
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cgagtgttaa ctacttttcc ctttcttctt tttttataa agaatacatt ctttcacatc 360
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gtttgaatta ctaatagtgg ggaataataa tttcagtttt ggttttaaac atctggnatt 1500
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 aaagggggggg n 1571

<210> 94

<211> 1872

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (51)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1271)

<223> n equals a,t,g, or c

<400> 94

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 ggaaagaggt gctggagtat ctgggtaacc ctgctaatta cccggtgtcc attcgatttg 1200
 gccggccccg cctcacttct aatgagaagc ttatgtctgg ctccatgttc cactcgtctt 1260

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ttgccatcgg ntcccagctg tctcctgaac agggaagctc aggcattgag atgctggaga 1320
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aatgttgtaa taaatattcc tttgatcttg gtgtttgcaa aaaaaaaaaa aaaaaaaact 1860
cgagactagc gg                                     1872

```

<210> 95

<211> 1516

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1505)

<223> n equals a,t,g, or c

<400> 95

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gccgaatctc cctaattccct gtgacotgtg tcacctctgc atcgcgagga gggggataag 180
tggggagaag tctggtgtca gatgggatgg cgccggaaga ggggtgccaca gcggggacgg 240
aaggcgcccc caccccaact ccacgggaat ataaacaatt tgtattttcc gatcaggtgg 300
cgggacaggc ttcattggga cagccctaac ccagctgtg aatgccagag gccacgaagt 360
acgtttgtct cccgaaagcc cgggccgggc cggatcacgt gggatgagct cgctgcatcg 420
gggctgccga gctgcgatgc cgccgtcaac ctggccggag agaacatcct caaccctctc 480
cgaagatgga atgaaacctt ccaaaaagag gttctcggca gccgcctaga gaccacccaa 540
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tctgcagttt aggcaataaa aataaattgt ctactaaaa aaaaaaaaaa aaattggggg 1500
ggggncccg acccat                                     1516

```

<210> 96

<211> 1770

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (485)

<223> n equals a,t,g, or c

<400> 96

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gtcggacatt gaagcggtag ccatgccggc agwgtgaaca gtccttccac accccaaca 120
gcctgcgcaa acacatccgc aacaacccatg acacagtaaa gaagttctac acctgcgggt 180
actgcacaga ggacagcccc agctttcctc ggccctccct tctggagagc cacatcagcc 240
ttatgcatgg catcagaaac cctgatttga gccagacgtc caaagtgaac cctccgggtg 300
gacattcccc tcaggtgaac catctgaaaa gaccagtcag tggagtggg gacgctccag 360
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cgaaatgtag ttttgccaca gactcggggc tcgagtttca gagccacata cctcagcacc 480
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acattggaat atttgtactg ctctcgtgcc atttgagagg cttgctgccc caggcaggcc 1680
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```

<210> 97

<211> 938

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (183)

<223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (293)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (360)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (938)
 <223> n equals a,t,g, or c

<400> 97
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 gccaggccta ggagaagaca ggtgcagctc ttgcagctct gcgggtgtgc ggccaaaggc 180
 aangcccacg ggctggatgt cacttccccg actgtctctt gggtggcttg tccttgtgca 240
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 aaggggggaa ttgggttcca ccatagtctt ctgctctggt cctccacggg tgggaccagn 360
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 ctggcagaag aactcaccac ggttatctgt gaagagactc tgggatccca tcacctcaaa 480
 gccagagggt ccccaagtca ccgctgagag cacttgagcc tcaaggatgt aagcctgacc 540
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 tctctaattt cctccactcc cagttcgaag caaacagctt actgcctagt ccccgccaat 780
 cccaagggcg ggctggctga tggcagcatg gtgggctggc ctgggtgtgg agtgaaagag 840
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 ttcctattaa aggaccttct gaagggcaaa aaaaaaan 938

<210> 98
 <211> 311
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (297)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (309)
 <223> n equals a,t,g, or c

<400> 98
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 ccctgcccta cgcccaggca tgtgccatcc tcccgccacc cagaggtttg tgggctgagg 120


```

accactctc accgctgtct ctttcgtccc cagctccagg ccatgcccgc agccggaggt 180
gtgctctacc agccctcggg accagccagy ttccccagca ctttcagccc ygccggctcg 240
gtggagggct ccccaatgca cggcgtgtac atgagccagc cggtccttgc cgttggnccc 300
taccacagna t 311

```

```

<210> 99
<211> 620
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (368)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (570)
<223> n equals a,t,g, or c

```

```

<400> 99
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ccggaggagc tggcagccct ctttgcgccc tacggcacgg tcatgagctg cgccgtcatg 180
aaacagttcg ctttcgtgca catgcgcgag aacgcggggc cgtgcgcgc catcgaagcc 240
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cctcttaata cttggaagat ttctgtgggc aatgtgtcgg ctgcatgcac gagccaggaa 360
ctgcgcancct cttcgagcgc cgcggacgcg tcatcgagtg tgacgtggtg aaagactacg 420
cgtttgttca matggagaag gaagcagatg ccaaagccgc aatcgcgag ttcaacggca 480
aagaagtgaag gggcaagcgc atcaacgtgg aatctycacc aagggtcaga agaagggggc 540
tggcctggct gtccagtcctt gggacaagan caagaaacca agggctgggg ataggccttc 600
cctggaatgg tggctttctg 620

```

```

<210> 100
<211> 2511
<212> DNA
<213> Homo sapiens

```

```

<220>
<221> misc feature
<222> (12)
<223> n equals a,t,g, or c

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```

<220>
<221> misc feature
<222> (28)
<223> n equals a,t,g, or c

```

```

<220>
<221> misc feature
<222> (44)

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2456)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2488)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2511)

<223> n equals a,t,g, or c

<400> 100

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ccccactaa ggtttgagac agttccagaa agaaccgaag ctcaagacgc aggacgagct 180
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cactattaca tatttttcta gaaaatctaa agttcagaag agaattgtatc actgctgact 2160
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catccacaat aaatggaatt ccttcctgca aaaaaaaaaa aaaaaagggc ggccgntcta 2460
gaggatccag gcttacgtac gcgtgccngc gacgtccata gccccttcta n 2511

```

<210> 101

<211> 2981

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (293)

<223> n equals a,t,g, or c

<400> 101

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```

<210> 102

<211> 2804

<212> DNA

<213> Homo sapiens

<400> 102

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<210> 103

<211> 722

<212> DNA

<213> Homo sapiens

<400> 103

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aa 722

```

<210> 104

<211> 1636

<212> DNA

<213> Homo sapiens

<400> 104

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```

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aaaaaggggg gggggg                                     1636

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<210> 105

<211> 1561

<212> DNA

<213> Homo sapiens

<400> 105

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1561

<210> 106

<211> 486

<212> DNA

<213> Homo sapiens

<400> 106

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agtggccagt actatgatta tgattttccc ctatcaattt atgggcaatc atcaccaaac 180
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486

<210> 107

<211> 800

<212> DNA

<213> Homo sapiens

<400> 107

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800

<210> 108

<211> 1058

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (895)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1019)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1054)

<223> n equals a,t,g, or c

<400> 108

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<210> 109

<211> 1076

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (780)

<223> n equals a,t,g, or c

<400> 109

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```

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<210> 110

<211> 1199

<212> DNA

<213> Homo sapiens

<400> 110

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gttggtggag ttctgcccgg atggaagctc cggccgcgga gtgatggtgg cctcagcgaa 60
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```

<210> 111

<211> 3630

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3606)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3608)

<223> n equals a,t,g, or c

<400> 111

```

cggcgttggt cagtcagagc gagaacattc cagaggctgc ccagctccgg cgctgacggg 60
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cgcccgctcc tcgctgcgct tcgctccgct ctccctcggac tcggactcgg gtttatatcg 180
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ctaataagcc aaaatgtctg tcaatgtcaa ccgcagcgtg tcagaccagt tctatcgcta 360
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```

<210> 112

<211> 1526

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1496)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1511)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1512)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1515)

<223> n equals a,t,g, or c

<400> 112

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tcttgaggct atcagatcgg tatggcattg gcgtccgggc ccgcaaggcg ggcgctagct 120
ggctccgggc agctcggcct tgggggcttc ggggccccga gacgcggggc gtatgagtg 180
ggcgtgcgct ccacgcggaa gtcggagcct cctcccctgg atagggtgta cgagatccct 240
ggactggagc ccatcacctt tgcggggaag atgcacttcg tgccctggct ggcgcgggcc 300
atctttccgc cctgggaccg cggctacaag gaccaagggt tctaccgctc gccccctctt 360

```

```

cacgagcadc cgctgtacaa agaccaggcc tgctatatct ttcaccaccg ttgccgcctt 420
ctcgaggggtg taaagcaggc cctctggctc accaagacca agttaataga aggccttccc 480
gagaaagtgc ttagccttgt tgatgatcca aggaaccaca tagagaacca agacgagtgc 540
gttctggaatg tgatctctca cgcccgctctc tggcagacca ctgaggaaat ccccaagaga 600
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gatcctctgc ccaccatcgc ctccagagag gagattgaag ctactaagaa tcatgttcta 840
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ggccgctcaa nnggncccaa gttagt 1526

```

<210> 113

<211> 585

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (422)

<223> n equals a,t,g, or c

<400> 113

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tggtgttggt attaggagat ctgcacatcc cacaccgggt caacagtgtt ccagctaaat 120
tcaaaaaact cctggtgcca ggaataatc agcacattct ctgcacagga aacctttgca 180
ccaaagagag ttatgactat ctcaagactc tggctggtga tgttcatatt gtgagaggag 240
acttcgatga gaatctgaat tatccagaac agaaagtgtg gactgttggg cagttcaaaa 300
ttggtctgat ccatggacat caagtatttc catggggaga tatggccagc ttagccctgt 360
tgcagaggca atttgatgtg gacattctta tctygggaca cacacacaaa tttgaagcat 420
tngagcatga aaataaatc tacattaatc caggttctgc cactggggca tataatgcct 480
tggaacaaaa cattattyca tcattgtgtt gatggatatc caggcttcta cagtggkcac 540
ctatgtgtaa tcagctaatt ggagatgaag tgaaagtaga acgga 585

```

<210> 114

<211> 501

<212> DNA

<213> Homo sapiens

<400> 114

```

gatgaaaaga aggtttttgc tcttcaaagt cttaagtaaa ctaaaaggca gagctggaaa 60
taaagcccgt attgtggact ccaagtaagt ctctttctgc tacaccatac tttgtggtgt 120

```

```

ctgctcccat gtgcttcttc gctaaggctg atcaaaaaag ttagtaggtt gcttcagcta 180
taagaatttg atggtcttcc ttagtcatca tagtctgcag caatcatttt tgttcatcat 240
tgggatgtct gcttactcct gttgagtaaa tgtgatctat tcacccttgg ragctccttg 300
cacaccaaca gtattcttgg atagggacaa gtgttgtcta agtcagtgcg gatttcttta 360
gcataataaa aggctccatg taggatgcta atacttgagt gaaatatgct tcataagcag 420
ccttgttttg acagagtggg tgtaaagtga gggtatgtct tggcctgagc gtcttcaaag 480
catgtgccac tttgtgcac t 501

```

<210> 115

<211> 1965

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (338)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (343)

<223> n equals a,t,g, or c

<400> 115

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agaggcggca ctggcggcaa gagcagacgc ccgaaccgag cgagaagagc ggcagagcct 60
tatccccga agccgggccc cgcgtcccag mcctggccca aaggcaggag cagcagacaa 120
gagtgcagtg gtggctgccg ccgcaccagc ctgagtggca gatgacacac cccccccga 180
gcgtcggaac aagagcggta tcatcagtga gcccctcaac aagagcctgc gccgctcccg 240
cccgtctcc cactactctt cttttggcag cagtggtggt agtggcgggt gcagcatgat 300
gggaggagag tctgtgaca aggcactgc ggctgcancc tgnccctccct gttggccaat 360
gggcatgacc tggcggcggc catggcgggt gacaaaagca accctacctc aaagcacaaa 420
agtggtgctg tggccagcct gctgagcaag gcagagcggg ccacggagct ggcagccgag 480
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gagcatctcc cgctgatgag cgaggcgggt gctggcctgc ctgacatgga ggctgtggca 600
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aagaagcgga aacgctgcgg catgtgcgcg ccctgccggc ggcgcacata ctgcgagcag 840
tgcagcagtt gtaggaatcg aaagactggc catcagattt gcaaattcag aaaatgtgag 900
gaactcaaaa agaagccttc cgctgctctg gagaaggtga tgcttccgac gggagccgcc 960
ttccggtggt ttcatgacg gcggcggaac ccaaagctgc cctctccgtg caatgtcact 1020
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tccgaccatg aaatagtgc tagtttgctt ggagaatcca ctacagttca taaagagaat 1500
gttgatggcg ccgtgtagaa gccgtctgt atccatccac gcgtgcagag ctgccagcag 1560
ggagctcaca gaaggggagg gagcaccagg ccagctgagc tgcaccaca gtcccagac 1620

```

```

tgggatcccc caccccaaca gtgatttttg aaaaaaaaaat gaaagttctg ttcgtttatc 1680
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aataagtcct ttttttctgg ccttgctaata ggcaacagaa gaaagggctt ctttgcgtagg 1800
tcccctgctg gtgggggtgg tcccagggg cccctgcgc ctgggcccc ctsccacggc 1860
cagcttcctg ctgatgaaca tgctgtttgt attgttttag gaaaccaggc tgttttgtga 1920
ataaacgaa tgcatgtttg tgtcacgaar maaaaaaaaa aaaaaa 1965

```

<210> 116

<211> 1060

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (299)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1060)

<223> n equals a,t,g, or c

<400> 116

```

gaaacacata cattggatat gggaagatgg cggctgtgtc ggtgtatgct ccaccagttg 60
gaggcttctc ttttgataac tgccgcagaa tgccgtcttg gaagccgatt ttgcaaagag 120
gggatacaag cttccaaagg yccgaaaaac tggcacgacc atcgctgggg tgggtctataa 180
ggatggcata gttcttgagg cagatacaag agcaactgaa gggatggttg ttgctgacaa 240
gaactgttca aaaatacaact tcatatctcc taatatattat tgttgtgggtg ctgggacanc 300
tgcagacaca gacatgacaa cccagctcat ttcttccaac ctggagctcc actccctctc 360
cactggccgt cttccagag ttgtgacagc caatcggatg ctgaagcaga tgcttttcag 420
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ggaagccaag aatctgggtg gcgaagccat cgcagctggc atcttcaacg acctgggctc 660
cggaagcaac attgacctct gcgtcatcag caagaacaag ctggattttc tccgcccata 720
cacagtgcc aacaagaagg ggaccaggct tggccggtag aggtgtgaga aagggaactac 780
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gagcattgag gcccgagtaag acactcatgt ggctagtgtt tgccgaatga aactcaactc 960
aataaaaaac aaaaaccaa ttgggcagct gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1020
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1060

```

<210> 117

<211> 709

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (174)

<223> n equals a,t,g, or c

<400> 117

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gacttgtctg atcacccaat ggaagtggat acttgtaaag tctacaccac tgtacttggc 120
gttaaatctt gctgaattcg tggtaagctg ttaccatgtc tacattttgt agantgattt 180
tggctctgcag caaaattcga tttcacttct catacccctt tccttccact tgaaatgcaa 240
tttagacaga ggccctgtgg tgaaagtgc aatattaagt ttmcccttag aagatcccyt 300
cctcaaacct cagaaccctc agcagtgtta ccctwaaaca aaaatgagct cgagaaaaaa 360
gtagctcagt tacagagaag caaatcgagt tatttcccca cataaaaagt ttccccagat 420
tctaagaatt gcagtatcct gtaccctaaa atttttcaag gtgactcctg ttgtcgtctg 480
ttgataactt taataaaggc catttaagga cataagtttt taaagactcc caaagtgaag 540
cttaaacatt ttcgggatta tcgattgcat atatcagttt atgctgtgtg ctgaattact 600
atgccatgtg ctatttttagt gtttggggaa aatgaaaaat aaaatttggt ctttagctta 660
ataaatatgt cttattttta aaaaaaaaaa aaaaaactcg agactagct 709
```

<210> 118

<211> 2053

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (813)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2049)

<223> n equals a,t,g, or c

<400> 118

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ccattcccga tacaccttac ttactgtgtg ttggcccagc cagagtggag aaggagtgtg 120
gccacattgg agatggcggg actgagcaga catgcccaca cgagtgcctt gactccctgg 180
tgtgtcctcg gaaggaaagt ctgggggacc ccccaccgg agcacacca rggatcatct 240
ttgccgtctt cctggggacc cccaagaaa tgtggagtcc tcgggggccc tgcactgatg 300
cggggagtgt gggaaagtct gcggttggar ggggtgggtg ggggcagtgg gggctgggcg 360
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tgacagcaga cttgcagaat tacatagaga aattaggaac ccccaaattt catgtcaatt 480
gatctattcc ccctctttgt ttcttggggc atttttcctt tttttttttt ttttgttttt 540
tttttaccct tccttagctt tatgcgtca gaaaccaa ataaaccccc ccccatgtaa 600
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ccccccgcca tttatcgccc tgattggatt ttgtttttca tctgtccctg ttgcttgggt 720
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aggggagtgg agaaggccac tgtccggcct ggnttctggg gacagtggct ggtccccaga 840
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```

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ggggggggnc cgg                                     2053

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<210> 119

<211> 1824

<212> DNA

<213> Homo sapiens

<400> 119

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aataaatgtg cactgtaatg gaaa 1824

<210> 120

<211> 606

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (144)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (155)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (598)

<223> n equals a,t,g, or c

<400> 120

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aggccttgac ttaaaaacttt ctttgtactg tgatttcctt ttgggtgtat tttgctaagt 480
gaaacttggt aaattttttg ttaactaaat ttttttctta aaataaagac tttttcacia 540
wraaaaaaaa aaaaaaaaaa actcgagggg gggcccgtac ccaatcgctt gtgatgtntc 600
gtatac 606

<210> 121

<211> 838

<212> DNA

<213> Homo sapiens

<400> 121

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<210> 122

<211> 656

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (41)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (218)

<223> n equals a,t,g, or c

<400> 122

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gcgtcctggc cgcagcggcg cgtgcctgg tccgggggtgc ggaccgaatg agcaagtga 180
cgagcaagcg gggcccgcgc agcttcagg gccgcaang cgggggcgcc aagggeatcg 240
gttcctcac ctcgggctgg aggttcgtgc agatcaagga gatggtccc gagttcgtcg 300
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cacaggagg aaagctcttc cagctctacc ccaggaactt cctgcgctag ctggggcggg 540
gaggggcggc ctgccctcat ctcatcttcta ttaaagcct ttgccagcta aaaaaaaaaa 600
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaggggggg gggcggacgc gtgggc 656

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<210> 123

<211> 1386

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (8)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1283)

<223> n equals a,t,g, or c

<400> 123

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aaccgggnaa aaggaaaccg tggtgtgtac gtaagattca ggaaacgaaa ccaggagccg 60

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cattgg 1386

<210> 124

<211> 845

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (823)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (825)

<223> n equals a,t,g, or c

<400> 124

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cttcgcctcg gtaatacctg tctgatgcc aagattttat ttattctccc ctaaccacag 720
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa atntnggggg ggggcccccc 840
cccccc 845

<210> 125

<211> 1656

<212> DNA

<213> Homo sapiens

<400> 125

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aagataaaaa cgcccaaaaa aaaaaaaaaa aaaacc 1656

<210> 126

<211> 837

<212> DNA

<213> Homo sapiens

<400> 126

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aaaattccag ttatttattt ccaaaatgtt tggaaacagt ataatttgac aaagaaaaat 180
gatacttctc tttttttgct gttccaccaa atacaattca aatgcttttt gttttatttt 240
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gtactttcac ttttaactc tagatcagaa ttggtgactt gcattcagaa cataaatgca 780
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<210> 127

<211> 1217

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1168)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1169)

<223> n equals a,t,g, or c

<400> 127

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ttccgcagtt cgaagcccag ttgggcccag caggtggagg aggaggggga ggacgacaaa 180
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tggaaccacc gctgccccta caaggatag ctggggccca tgcagaagga gctggccgag 660
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<210> 128

<211> 1349

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (57)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1133)

<223> n equals a,t,g, or c

<400> 128

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gctgaggaca tgacatccaa agattactac tttgactcct acgcacactt tggcatccac 180
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa                                     1349
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<210> 129

<211> 2318

<212> DNA

<213> Homo sapiens

<400> 129

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aagctgggca aggcgcacgc accacgagca atacggtgag caagctgctg gagaagggtg 480
```

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gcaagggtcag cgtcaacgtg aagaccgtgc gcggcagcct ggagcgccag gcggggcaga 540
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tctaccagga tgaagtgaag ctgccggcca aactgagcat cagcaaatcg ctgaaagagt 660
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```

<210> 130

<211> 2149

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (787)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (819)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1518)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2116)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2147)
<223> n equals a,t,g, or c

<400> 130
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ccacgcgtcc ggagaaggca gacgcatccc gaactcgctg gaggacaagg ctcagctctt 120
gccaggccaa attgagacat gtctgacaca agcgagagtg gtgcaggctt aactcgcttc 180
caggctgaag cttcagaaaa ggacagtagc tcgatgatgc agactctgtt gacagtgacc 240
cagaatgtgg aggtcccaga gacaccgaag cctcaaaggc actggaggtc tcagaggatg 300
tgaagggtctc aaaagcctct ggggtctcaa aggccacaga ggtctcaaag accccagagg 360
ctcgggaggc acctgccacc caggcctcrt ctactactca gctgactgat acccagggtc 420
tggcagctga aaacaagagt ctgacagctg acaccaagaa acagaatgct gacctgcagg 480
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atacaaaggc tcaggagact gaggtgcac cctctcaggc cccagcagat gaacctgagc 600
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aggcgatgga agcrgatttg aaggctgcag ctgaggctgc agctgaagcc aaggctaggg 1620
ccgagattag agctcgaatg ggcattgggc tcggctcgga gaatgctgcc gggccctgca 1680
actgggacga agctgatatc ggaccctggg ccaaagcccg gatccaggcg ggagcagaag 1740
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ctttctcttc aagccagggt gcacacctcag aaacctactc aacacagcac tctaggcagc 2040
cactatcaat caattgaagt tgacactctg cattaatatc atttgccatt tcaaaaaaaaa 2100
aaaaaaaaa actcgnnggg gggcccggtc cccaattggc ccatagnng 2149

<210> 131
<211> 1020

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (11)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1019)

<223> n equals a,t,g, or c

<400> 131

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ctaaaattgg gcacctgcc cccaacttca aagccacagc tggtatgcca gatggtcagt 180
ttaaagatat cagcctgtct gactacaaag gaaaatatgt tgtgttcttc tttaccctc 240
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ttaagaaact caactgccaa gtgattggtg cttctgtgga ttctcacttc tgcatctag 360
catgggtcaa tacacctaag aaacaaggag gactgggacc catgaacatt cctttggtat 420
cagacccgaa ggcgaccatt gctcaggatt atggggtctt aaaggctgat gaaggcatct 480
cgttcagggg cctttttatc attgatgata aggggtattct tcggcagatc actgtaaag 540
acctccctgt tggccgctct gtggatgaga ctttgagact agttcaggcc ttccagttca 600
ctgacaaaca tggggaagtg tgcccagctg gctggaaacc tggcagtgat accatcaagc 660
ctgatgtcca aaagagcaaa gaatatctt ccaagcagaa gtgagcgctg ggctgtttta 720
gtgccaggct gcggtgggca gccatgagaa caaacctct tctgtatttt tttttccat 780
tagtaaaaca caagacttca gattcagccg aattgtggtg tcttacaagg caggcctttc 840
ctacaggggg tggagagacc agcctttctt cctttggtag gaatggcctg agttggcgtt 900
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```

<210> 132

<211> 2319

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (10)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2246)

<223> n equals a,t,g, or c

<400> 132

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ttgggggtgg gggcgggcca gcactcactg tttgcttccc caggccagct ggaggtgatc 120
ttgggaccgg cggtgatgc aggatgacaa ccggggccta ggccaagggc tcaaggacaa 180
```

```

caagagaacc tgcaaccgtt tccgcctcct gctagagcgg cgaaccrtgg gcagtgaagg 240
ccaagatagc cactctacca gctaccatc cctcctcagc cacctgacct ccatgtacct 300
gaacgccccg gcgctcgctc tgctgtagc caggatgcag ctcccaggcc ctggtctgcg 360
ctcatttcat cctctggctt cctcactgcc ctgtgacttc cacctgctca acctacgtac 420
gctccaggct gaggaggaca ccctaccctc ggccggagacc gcactcatct tacaccgcaa 480
ggttttgact gcggcctgga ggcaagaact tgggcttcaa ctgcaccaca agccaaggca 540
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atcccgatct gcctcccaga actgtgacac actgggctct gccytcatth tctgtttatt 840
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taagaatcaa ctgaagacct gttaagagta ttctgtaagt caaccatg atacacatca 2160
tgctcctgtc cacatactgg ttttcccaa atcagctgat aaattcagt taattccaat 2220
gagatgaac tttggaattg acagtnctaa agtgcttgat gagagtgaat gtgtgagaac 2280
actaagacca ctctgaacga tgataatgag tttgggggt 2319

```

<210> 133

<211> 1373

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (403)

<223> n equals a,t,g, or c

<400> 133

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ggctggtgga gtcacttccg cgtcaccagc tctgtgcct gccagtcggg gccctccccg 120
ctccagccat gctctccgc ctcgccggc ctgccagcgc tgctctccgc cgcagcttca 180

```

```

gcacctcggc ccagaacaat gctaaagtag ctgtgctagg ggcctctgga ggcacccggc 240
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tcgcgcacac acccggagtg gccgcagatc tgagccacat cgagaccaa ggcgctgtga 360
aaggctacct cggacctgaa cagctgcctg actgcctgaa agnttgatgt gtggtagtta 420
ttccggctgg agtccccaga aagccaggca tgaccgggga cgacctgttc aacaccaatg 480
ccacgattgt ggccaccctg accgctgcct gtgccagca ctgccggaa gccatgatct 540
gcgtcattgc caatccggtt aattccacca tccccatcac agcagaagtt ttcaagaagc 600
atggagtgtg caacccaac aaaatcttcg gcgtgacgac cctggacatc gtcagagcca 660
acacctttgt tgcagagctg aagggtttgg atccagctcg agtcaacgct cctgtcattg 720
gtggccatgc tgggaagacc atcatcccc tgatctctca gtgcaccccc aaggtggact 780
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atgccatccc cgagctgaag gcctccatca agaaggggga agatttcgtg aagacctga 1140
agtgaacgac tgtgacgggt ggccagtttc cttaatatt gaaggcatca tgtcactgca 1200
aagccgttgc agataaactt tgtattttaa tttgctttgg tgatgattac tgtattgaca 1260
tcacatgccc ttccaaattg tgggtggctc tgtgggcgca tcaataaaag ccgtccttga 1320
ttttattttt caaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1373

```

<210> 134

<211> 1657

<212> DNA

<213> Homo sapiens

<400> 134

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ggaacaagtg cctgtagtgt gtttgatct gtaccctacg actgattata cggatgaatgt 60
gacctgctg agatctccta agcggcactc agtcaaataa caatagcaac tccccagca 120
gtaaaacaga ccatcagtaa ctttcagga tttaatgaaa cctgcttgag atggagaagc 180
atcaagacag ctgatatgga ggagatgtat ttattccaca ttggggcca gagatggat 240
cagaaggaaat ttgccagga aatgacctt aatatcagta gcagcagccg agatcccgag 300
gtgtgcttgg acctacgtcc gggtaaccaac tacaatgtca gtctccgggc tctgtcttcg 360
gaacttcctg tggatcatc cctgacaacc cagataacag agcctccct cccggaagta 420
gaatttttta cgggtgcacag aggacctcta ccacgcctca gactgaggaa agccaaggag 480
aaaaatggac caatcagttc atatcaggtg ttagtgcttc ccctggccct ccaaagcaca 540
tttctctgtg attctgaagg cgcttcctcc ttctttagca acgcctctga tgcgtatgga 600
tacgtggctg cagaactact ggccaaagat gttccagatg atgccatgga gataacctata 660
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tgcattatat tacgaatcac aagtgaatgg aataaggatga gaagacactc ctgtgcagtt 780
tgggctcagg tgaaagattc gtcactcatg ctgtgcaga tggcgggtgt tggactgggt 840
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gaatctctgc aacctctat ataaaagcat ttctgttaat tcattcagaa tccattctt 1320
acaatatgca gtgagatggg cttaagtttg ggctagagtt tgactttatg aaggaggtca 1380
ttgaaaaaga gaacagtgc gtaggcaaat gtttcaagca ctttagaaac agtactttt 1440

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ctataattag ttgatatact aatgagaaaa tatactagcc tgccatgccataaagtgtcc 1500
tgctgtgtct gttaggcagc attgctttga tgcaatttct attgtcctat atattcaaaa 1560
gtaatgtcta cattccagta aaaatatccc gtaattaaaa aaaaaaaaaa aaaaaaaaaa 1620
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa ggcggcc 1657
```

<210> 135

<211> 2360

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1517)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2330)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2353)

<223> n equals a,t,g, or c

<400> 135

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ttcctctcca gctcagccgc gtaggtttgg acatatgtga ctcttttccc cccaggttga 120
attgacaaaa gcaatggtga tggagaagcc tagtcccctg ctggtcgggc ggggaattgt 180
gagacagtat tacacactgc tgaaccaggc cccagacatg ctgcatagat tttatggaaa 240
gaactcttct tatgtccatg ggggattgga ttcaaatgga aagccagcag atgcagtcta 300
cggacagaaa gaaatccaca ggaaagtgat gtcacaaaac ttcaccaact gccacaccaa 360
gattcgccat gttgatgctc atgccacgct aaatgatggt gtggtagtcc aggtgatggg 420
gcttctctct aacaacaacc aggccttgag gagattcatg caaacgtttg tccttgctcc 480
tgaggggtct gttgcaaata aattctatgt tcacaatgat atcttcagat accaagatga 540
ggtcttttgg gggtttgtca ctgagcctca ggaggagtct gaagaagaag tagaggaacc 600
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tgggctgggt ggtggaatga gaggccctcc ccgtggaggc atggtgcaga aaccaggatt 1500
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tggagtggga arggggnttg cgccacggca gtgaatcttc atggatcttc atgcagccat 1560
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gaattttttt ttgataaagg atcacaaaac aattctaaaa cctaactgtt tttaccattg 2160
aaatttaaat tgtgataata ggttttaaat gtctagaatg caactgatag gcttttcttg 2220
aactgttagt ttttttgaa tagtttttct cakgtttaat ttgtatttgg ttaaaaaaac 2280
maaaaggcca aaaattcccc aaaacccggg ttaaccacca grgscaaacn gttgtggcct 2340
tccaattaa ccntgggatt 2360
```

<210> 136

<211> 1042

<212> DNA

<213> Homo sapiens

<400> 136

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gatggctgca gcggcgcccg gggccgggag cgggccctgg gcggcccagg agaagcagtt 120
cccgccggcg ctgctgagtt tctcatctca caaccgcgc ttcgggccgc gcgaaggaca 180
ggaggaaaat aagattttat tttatcatcc aaatgaggtg gaaaagaatg agaagattag 240
aaatgtcgga ttgtgtgaag ctattgtaca gtttacaagg acatttagcc catcaaaacc 300
tgcaaaatct ttacatacac agaagaacag acagttcttc aatgaaccag aagaaaattt 360
ctggatggtc atggttggtc ggartcctat aattgaaaaa cagagtaaag atggaaaacc 420
agttattgaa tatcaagagg aggagttggt ggacaagggt tatagctcgg tgctgcggca 480
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cgtcaagctt ctgaaagaaa gattagagaa attcttccat cggattttgc aaacgctaca 600
tttgagtcga tgtgacctac ttgacatttt tgggtggaatc agcttcttcc cgttggataa 660
aatgacttat ttgaaaatcc agtcccttat taatagaatg gaggaagcc tgaatatagt 720
caaatacact gcttttctct ataacgatca gctcatctgg agtggattag aacaagatga 780
catgagaatt ttatacaaat accttaccac ctccctttty ccaaggcaca tcgaacctga 840
gttagcagga agggattctc caataagagc agaaatgccg ggaaatcttc aacactatgg 900
aagatttctt accggaccct tgaacctcaa tgatccagat gcaaaatgca gattccccc 960
aatttttgta aatacagwtg acacttatga agagctccat ttaatcgktt ataaggyctg 1020
agaaagaacc ccagtttaag tt 1042
```

<210> 137

<211> 1037

<212> DNA

<213> Homo sapiens

<400> 137

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ggcaccggga gcggcggggt ggtctacgct gtgcgcggcg gacgtcggag gcagcgggga 60
gcggagcggg gccgcggggg cctctccagg gccgcagcgg cagcagttgg gccccccgcc 120
ccggccggcg gaccgaagaa cgcaggaaag gggccggggg gacccgcccc cggccggccc 180
cagccatgaa ctccaacgtg gagaacctac ccccgccat catccgcctg gtgtacaagg 240
```

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agggtgacgac actgaccgca gacccacccg atggcatcaa ggtctttccc aacgaggagg 300
acctcaccga cctccaggtc accatcgagg gccctgaggg gaccccatat gctggaggtc 360
tgttccgcat gaaactcctg ctggggaagg acttccctgc ctccccaccc aagggtact 420
tcctgaccaa gatcttcac ccgaacgtgg gcgccaatgg cgagatctgc gtcaacgtgc 480
tcaagaggga ctggacggct gagctgggca tccgacacgt actgctgacc atcaagtgc 540
tgctgatcca ccctaacccc gagtctgcac tcaacgagga ggcgggccgc ctgctcttgg 600
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gcggggcccag cggcaggggc gaagccggtc gggccctggc cagtggcact gaagcttcct 720
ccaccgaccc tggggcccca gggggcccgg gaggggctga gggccccatg gccaagaagc 780
atgctggcga gcgcgataag aagctggcgg ccaagaaaaa gacggacaag aagcgggcgc 840
tgcgggcggt gtatgtgggt ctcttcctcc ttccaccgtg accccaacct ctctgtccc 900
ctccctccaa ctctgtctct aagttattta aattatggct ggggtcgggg agggtagagg 960
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aaaaaaaaa aaaaaaa                                     1037

```

<210> 138

<211> 1490

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1225)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1239)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1348)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1452)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1487)

<223> n equals a,t,g, or c

<400> 138

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cggcacgagg tggattcttg tccatagtgc atctgcttta agaattaacg aaagcagtgt 60
caagacagta aggattcaaa ccatttgcca aaaatgagtc taagtgcatt tactctcttc 120
ctggcattga ttggtggtac cagtggccag tactatgatt atgattttcc cctatcaatt 180
tatgggcaat catcaccaaa ctgtgcacca gaatgtaact gccctgaaag ctaccaagt 240
gccatgtact gtgatgagct gaaattgaaa agtgtaccaaa tgggtgcctcc tggaatcaag 300

```

```
tatctttacc ttaggaataa ccagattgac catattgatg aaaaggcctt tgagaatgta 360
actgatctgc agtggctcat tctagatcac aaccttctag aaaactccaa gataaaaggg 420
agagttttct ctaaattgaa acaactgaag aagctgcata taaaccacaa caacctgaca 480
gagtctgtgg gccacttcc caaatctctg gaggatctgc agcttactca taacaagatc 540
acaaagctgg gctcttttga aggattggta aacctgacct tcatccatct ccagcacaat 600
cggctgaaag aggatgctgt ttcagctgct tttaaaggte ttaaatcact cgaatacctt 660
gacttgagct tcaatcagat agccagactg ccttctgggc tccctgtctc tcttctaact 720
ctctacttag acaacaataa gatcagcaac atccctgatg agtatttcaa gcgttttaat 780
gcattgcagt atctgcgttt atctcacaac gaactggctg atagtggaat acctggaaat 840
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ccaactgtca atgaaaacct tgaaaactat tacctggagg tcaatcaact tgagaagttt 960
gacataaaga gcttctgcaa gatcctgggg ccattatcct actccaagat caagcatttg 1020
cgtttggatg gcaatcgcat ctcaraaacc agtcttccac cggatatgta tgaatgtcta 1080
cgtgktgcta acgaagtcac tcttaattaa tatctgtatc ctggaacaat attttatggk 1140
tatgktttct tgtgkgtcag ttttcatagt atccatawtt tawtactgkk tattacttcc 1200
atgaatttta aaatctgagg gaaangtttg taaacattna tttttttaa gaaaagagaa 1260
aggcaggcct attcatcaca agaacacaca catatwcacg aatagacatc aaactcatgc 1320
tttatttgta aatttagtgt ttttttantt ctacgtcaaa gatgtgcaa accttttacg 1380
gttcaggaa acagccagtt ttaaaatcct taaacttaag ttcctcaagc tggataaaac 1440
ataggagtac cncctgcacaa tatctgaaca tcaatgtcgg taaaatnggg 1490
```

<210> 139

<211> 1684

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (93)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (201)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1657)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1659)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1682)

<223> n equals a,t,g, or c

<400> 139

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tcgacccaag cgtccggccg gctgagccac agcaggggtcg ccgcgggggtc ccgggggccgt 60
gctcccctgc ccctccggga gcgcgcgggg cgnngcgggg cggggcgggg ccaggcgggc 120
gagctggggc ctcgccccct cctcgggcgg tcacctgggc acgggcgctg caggtgtcgg 180
ggcctcaacc ttgcggaccg nacagccatc gatcctcggg tggcctcgag gtggtggcag 240
ggcgcggccc tgcagtccgg agacgaacgc acggaccggg cctccggagc argttcgyt 300
ggaargaamc gctctcgstt cgtcctacac ttgcgcaaat gtctccgagc ttactcacat 360
agcatattgg tatatcaaaa tgaaatgcaa ggaacaaaaa ataacataat tgaaggcagt 420
aaaagtgaat ttaaataagg agatcatcag tcaagggaaga cccactggag aggacagaaa 480
atgaagcagt gttttatcat gtgtatttca gcaggtcttc ttgaaattta actaaaaata 540
tgactgctct ctcttcagag aactgctctt ttcagtacca gttacgtcaa acaaaccagc 600
ccctagatgt taactatctg ctattcttga tcatacttgg gaaaatatta ttaaataatc 660
ttacactagg aatgagaaga aaaaacacct gtcaaaatct tatggaatat ttttgcatct 720
cactagcatt cgttgatctt ttacttttgg taaacatttc cattatattg tatttcaggg 780
atthtgtact ttaagcatt aggttacta aataccacat ctgcctattt actcaaatta 840
tttcctttac ttatggcttt ttgcattatc cagttttcct gacagcttgt atagattatt 900
gcctgaatct ctctaaaaca accaagcttt catttaagtg tcaaaaatta ttttatttct 960
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accaaacgct gaaggcacag aatgcttatt ctggtcactg tcctttctat gtcagcattc 1080
agagttactg gctgtcattt ttcattggtg tgattttatt tgtagctttc ataacctgtt 1140
gggaagaagt tactactttg gtacaggcta tcaggataac ttcctatatg aatgaaacta 1200
tcttatattt tcctttttca tcccactcca gttatactgt gagatctaaa aaaatattct 1260
tatccaagct cattgtctgt tttctcagta cctgggttacc atttgacta cttcaggtaa 1320
tcattgtttt acttaaagtt cagattccag catatattga gatgaatatt ccctgggtat 1380
actttgtcaa tagttttctc attgctacag tgtattggtt taattgtcac aagcttaatt 1440
taaaagacat tggattacct ttggatccat ttgtcaactg gaagtgtctg ttcattccac 1500
ttacaattcc taatcttgag caaattgaaa agcctatatc aataatgatt tgktaatt 1560
attaattaaa agttacagct gtcataagat cataatttta tgaacagaaa gaactcagga 1620
catattaaaa aataaactgr actaaaacaa aaaaaancna aaaaaaaaaa aaaagggcgg 1680
cnac

```

1684

<210> 140

<211> 427

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (395)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (417)

<223> n equals a,t,g, or c

<400> 140

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ggacttcctc ccagcacatt cctgcactct gccgtgtcca cactgcccc cagacccagt 60
cctccaagcc tgctgccagc tccctgcaag cccctcaggt tgggccttgc cacggtgcca 120
gcaggcagcc ctgggctggg ggtaggggac tccctacagg cacgcagccc tgagacctca 180
gagggccacc ccttgagggt ggccaggccc ccagtggcca acctgagtgc tgcctctgcc 240

```


accagccctg ctggccctg gttccgctgg cccccagat gcctggctga gacacgccaat 300
ggcccttcag ctggccca cytyttccc gsccttgaa kttggcaytg cagcagacag 360
ytccytgggc accagrcagy taacaggaca cagcngccag cccaaacagc agcgggnatg 420
ggggcag 427

<210> 141

<211> 889

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (60)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (698)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (889)

<223> n equals a,t,g, or c

<400> 141

ggcacgaggt tgacgtcctg tagcatttgc tgttctagaa agtacagaga cacgtagaan 60
agatgggagg atctagaagg aggctgtctc ctgtgtagtg tatatttatc tgtaagttag 120
ccgttgggga aggattgaat acagagacgc tgtctgcttg ctgccttaag acagctagct 180
gaattgctga ttaactttta aaatacccag cttggtttat ttttcttaga atctgttgct 240
aagactgggg acgctgtttt cttttacaaa gggaaatcta agttaatttc aaggcattcg 300
aaatggggaa agactattat tgcatttttg gaattgagaa aggagcttca gatgaagata 360
ttaaaaaggc ttaccgaaaa caagccctca aatttcatcc ggacaagaac aaatctcctc 420
aggcagagga aaaatttaaa gaggtcgcag aagcttatga agtattgagt gatcctaaaa 480
agagagaaat atatgrtcag tttggggagg aagggttgaa aggaggagca ggaggtactg 540
atggacaagg aggtaccttc cggtacacct ttcattggcg tcctcatgct acatttgctg 600
catttttcgg aggtccaac ccctttgaaa ttttctttgg aagacgaatg ggtggtggtg 660
gagattctga agaaatggaa atagrtggtg atccttttag tgcctttggt ttcagcatga 720
atggatatcc aagagacagg aattctgtgg ggccatcccg cctcaaacia gatcctccag 780
ttattcatga acttagagta tcacttgaag agatatatag tggttgtacc aaacgggatg 840
aaagatttct cgaaaaaggt taaaacgctg atggtaggag ttacagttn 889

<210> 142

<211> 1505

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1493)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1499)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1500)
<223> n equals a,t,g, or c

<400> 142
agtgagggaa gcgatgggag cgggaatggc cggccacagg gtcgcaggag acgggacgcc 60
agcttttggc tccgttccgc tggtccttc gtcagtactg acacctcggg cttgtagagc 120
acttcacgca gcaaaagcgc cccccgtcta tatcatatcg cctctcggtc ctcctaaaag 180
tcgtatgaga tggagctgga ggaggggaag gcaggcagcg gactccgcca atattatctg 240
tccaagattg aagaactcca gctgattgtg aatgataaga gccaaaacct ccggaggctg 300
caggcacaga ggaacgaact aaatgctaaa gttcgcttat tgcgggagga gctacagctg 360
ctgcaggagc agggctccta tgtgggggaa gtagtccggg ccatggataa gaagaaagtg 420
ttggtcaagg tacatcctga aggtaaattt gttgtagacg tggacaaaaa cattgacatc 480
aatgatgtga cacccaattg ccgggtggct ctaaggaaatg acagctacac tctgcacaag 540
atcctgcccc acaaggtaga cccattagtg tctactgatg tggaggagaa agtaccagat 600
tcaacttatg agatgattgg tggactggac aaacagatca aggagatcaa agaagtgatc 660
gagctgcctg ttaagcatcc tgagctcttc gaagcactgg gcattgctca gcccaaggga 720
gtgctgctgt atggacctcc aggcactggg aagacactgt tggcccgggc tgtggctcat 780
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gcagtagcca aggtcatgca gaagacagtg gagaaaaaca tgtccatcaa gaaattatgg 1380
aagtgagtgg acagcctttg tgtgtatctc tccaataaag ctctgtgggc caagtcaaaa 1440
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aangggggnn 1500
cccccc 1505

<210> 143
<211> 1235
<212> DNA
<213> Homo sapiens

<400> 143
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cgggcaaagg tcccaggaag gtggcgtcag catctgcagc cgcgtcgacg ttgtcggagc 120
ctccgcggag gaccaggag agccggacta ggaccagggc cctgggcctc cccacactcc 180
ccatggagaa gctggcggcc tctacagagc cccaagggcc tcggccggtc ctgggcccgtg 240
agagtgtcca ggtgcccgat gaccaagact ttcgcagctt ccggtcagag tgtgaggctg 300
aggtgggctg gaacctgacc tatagcaggg ctgggggtgtc tgtctgggtg caggctgtgtg 360

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agatggatcg gacgctgcac aagatcaagt gccggatgga gtgctgtgat gtgccagccg 420
agacactcta cgacgtccta cacgacattg agtaccgcaa gaaatgggac agcaacgtca 480
ttgagacttt tgacatcgcc cgcttgacag tcaacgctga cgtgggctat tactcctgga 540
ggtgtcccaa gcccctgaag aaccgtgatg tcatcaccct ccgctcctgg ctccccatgg 600
gcgctgatta catcattatg aactactcag tcaaacatcc caaatacca cctcggaaag 660
acttggtccg agctgtgtcc atccagacgg gctacctcat ccagagcaca gggcccaaga 720
gctgcgtcat cacctacctg gcccaggtgg accccaaagg ctccctaccc aagtgggtgg 780
tgaataaatc ttctcagttc ctggctccca aggccatgaa gaagatgtac aaggcgtgcc 840
tcaagtaccc cgagtggaaa cagaagcacc tgcctcactt caagccgtgg ctgcacccgg 900
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gagacaggac cgggcgagcc ctggggcggg gcgcgctcct gcactttctc ccctcccca 1140
cccggcacct ggtggcaccg ggccaggccc aggcgggtgc tgcagcctgg ctggacagag 1200
ccccaataaa cgatcccaca gcctcaaaaa aaaaa
1235

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<210> 144

<211> 1420

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1385)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1396)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1400)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1410)

<223> n equals a,t,g, or c

<400> 144

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gcaagaacgg agctgactga ggaaccaact ggaggggtctt cactctctcc ttccccagtg 60
tacaaaacca gttttctgca acattcagga gccaaatgag gaaaaagaat caagaatctg 120
actcacagcc catctgatct gttcaaagct gtcttttcca cctgctgaaa ttcattaaat 180
cactggaggc atgcataatg aatggagaat gagtgaactt ccaatgcaac ttggattcac 240
aaaccatta tcatagccaa tatgcagatt ttaaacagca tttcacattt catttgacca 300
tgtcttcttt ttgcacgcgc ctgctgcaga attccctact agaatgtgaa acaacgaaca 360
aaccacagaa cttagagtgt gctggttagt cacataactt agtagcagga ttgtgtatcc 420
aggcacaaag gtgtctttgc taatgttctc ttgtacctg ccctgcttca aacgctaaat 480
ggtatgggtc tttctttgtt gccagccata ttctacaaat aagacttttc aatatagtta 540

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tgagtaatat aattttatgt acatataatg ttagaatatt gtacagaatc ttggtttcta 600
cgatgcgctt ttcttgtttc aaaaagagga aaatgcttga tttttgttga tgatactttt 660
gttactgtcc ttaattttcc atagtttggt ttcttaattg tgctcactaa gcatcgatct 720
gtgctgatgc caagctatgg actatgtacg caagaccgag caatagacag aggtgcctag 780
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cttctgtgca gactttaaga gctgaacggt ctgggttctgg aagccatgtg actgcgcaga 960
acaacctaaag aaaccttttg tgcctgagg ggtcgttgac ctctccttcc gggtcggagc 1020
agtcactctg agggcaaaagc gtggtccact gtgtgtgatg ttttcaggat gctaggggtca 1080
aagaaagaaa ccaagtggta cataagccca gcttttctgc tgggctaagt gtaagtgtga 1140
gtaacatggt caagcccctc ttttttgggc tatgtaaagc ctttctctgcc ttgcattaat 1200
gctatctccc tgtgtactgt ttctcttaaa tggagcagat agaaatctgc agtgttggca 1260
gataggtgga tgggagaggg atggataatt ttatcttctg ggccacagag ctggcagccc 1320
cagtttgtcc agagtccttt aaatggaaac ccccaaatcc atcccttcct ttccctaacc 1380
cccangggga tattcntagn attaagggcn cgggataagt 1420

<210> 145

<211> 1919

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1882)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1898)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1919)

<223> n equals a,t,g, or c

<400> 145

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cgtcggcccg cgggggggcg gcctcccggc atcttcgchg cgaccaagga ctaccaggaa 120
ggggagcggc tgggatggcg cgtccgggcc ccgskagtac aaagcgggch acctgggtctt 180
cgccaagatg aagggtctacc cgcactggcc ggcccggatt gatgaactcc cagaggcgct 240
gtgaagcctt cagcaaacaa gtatcctatc ttcttttttg gcacccatga aactgcattt 300
ctaggtccca aagacctttt tccatataag gagtacaaag acaagtttg aaagtcaaac 360
aaacggaaaag gatttaacga aggattgtgg gaaatagaaa ataaccag agtaaagttt 420
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actgcagatg caagcagtga ggaagaaggt gatagagtag aagaagatgg aaaaggcaaa 540
agaaagaatg aaaaagcagg ctcaaaacgg aaaaagtc atacttcaaa gaaatcctct 600
aaacagtccc ggaaatctcc aggagatgaa gatgacaaa actgcaaaga agaggaaaac 660
aaaagcagct ctgaggggtg agatgcgggc aacgacacaa gaaacacaac ttcagacttg 720
cagaaaacca gtgaaggagc ctaactacca taatgaatgc tgcataataa gagaaaccac 780
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<210> 146

<211> 1379

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (925)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1371)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1377)

<223> n equals a,t,g, or c

<400> 146

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cgattctggc agaataaaca ggtgttttta gttttccac tgtctgagcc aagcaggacc 180
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```

aagctgggtc agcggctctg aagccctcga gtgactttct aacccaagac ccagcccctg 720
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```

<210> 147

<211> 514

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (406)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (412)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (418)

<223> n equals a,t,g, or c

<400> 147

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cagtacaatt taaagaccac tatgtgtccc cggagaccaa cctgtttatt tccctgaaag 240
accgcaacac cccacacaac atgtttcaga catttggaac ttgttagata agacacttgt 300
aggagaaaga gatttcttaa attaatgagc ttatatatccc ctagagaagg ccatacaaat 360
ctgcggaacg gtgggcggac gcgtgggggg accgtgggtc gaacgnaccc ancgtccncg 420
gacgcgtggg cggacgcgtg ggcggacgcg tgggcggacg cgtgggcgga cgcgtgggcg 480
gacgcgtggg cggacgcgtg ggcggacgcg tggg

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514

<210> 148

<211> 2058

<212> DNA

<213> Homo sapiens

<400> 148

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tctgcgttca gggacctcgt cctttgttgg ctgtggagcg gactgggcag cggcccctgt 180
gggccccgtc cctggaactg cccaagccag tcatgcagcc cttgcctgct ggggccttcc 240
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cagaggagga tctgctgtgc atagccaaga ccttctccta ccttcgggaa tctggctggg 360
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aaaaaaaaaa aaaaaaag . 2058
```

<210> 149

<211> 1781

<212> DNA

<213> Homo sapiens

<400> 149

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taactcccag ggggttgact ggtggggtaa ctgagcctgc tttgcagtag gtcaccctgc 180
caaacaagct aatatgaaa ccacatgtaa cttagccaga ctataccttg ttagcttca 240
agaactcgca gtacattacc agctgtgatt ctccactgaa attttttttt taaggagct 300
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```

caaggtcaca agaagaaatg aaaggaacaa tcagcagccc tgttcagaag gtgggttgaa 360
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<210> 150

<211> 1709

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1612)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1660)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1678)

<223> n equals a,t,g, or c

<400> 150

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tgcgtcaggg acctgcccga ctcatgggcc gccatggcat cagatgaagg caaacttttt 120
gttggagggc tgagttttga caccaatgag cagtcgctgg agcaggtctt ctcaaagtac 180
ggacagatct ctgaagtggg ggttgtgaaa gacagggaga cccagagatc tcggggattt 240

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```

gggtttgtca cctttgagaa cattgacgac gctaaggatg ccatgatggc catgaatggg 300
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tcccgtgggt accgtggtgg ctctgccggg ggccggggct tcttccgtgg gggccgagga 420
cggggccgtg gggtctctag aggaggaggg gaccgaggct atggggggaa ccggttcgag 480
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```

<210> 151

<211> 922

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (906)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (915)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (922)

<223> n equals a,t,g, or c

<400> 151

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tagacaaggc agttgaggag gaggagcgc ttgaggggga ctggcctggc gtgactccg 120
cacctcgggg acattattgc gcgtggaacg gctgcttttg gaagactatt gccagaaga 180
aaagatgttt ggttttcaca agccaaagat gtaccgaagt atagagggt gctgtatttg 240

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```

cagagctaag tcctccagtt ctcgattcac tgacagtaaa cgctatgaaa aggacttcca 300
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tgtgaaaaga tggaagaagt tgccagcagg atcaaaaaaa aactggaatc atgtggtaga 420
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<210> 152

<211> 635

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (13)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (594)

<223> n equals a,t,g, or c

<220>

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<222> (614)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (616)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (628)

<223> n equals a,t,g, or c

<400> 152

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ctttctcgac tccatcttcg cggtagctgg gaccgccgtt cagtcgccaa tatgcagctc 120
tttgtccgcg cccaggagct acacaccttc gagtgaccg gccaggaaac ggtcgcccag 180
atcaaggctc atgtagcctc actggagggc attgcccccg aagatcaagt cgtgctcctg 240
gcaggcgcg cctggagga tgaggccact ctgggccagt gcggggtgga ggccctgact 300
accctggaag tagcaggccg catgcttgga ggtaaaagtc atggttcctt ggcccggtgt 360
ggaaaagtga gaggtcagac tcctaagggt gccaaacagg agaagaagaa gaagaagaca 420

```

```

ggtcggggcta agcggcgcat gcagtacaac cggcgctttg tcaacgttgt gccacacctt 480
ggcaagaaga agggcccaa tgccaactct taagtctttt gtaattcttg cttctcttaa 540
taaaaaagcc acttagttca aaaaaaaaaa aaaaaamtgc gggggggccc gkancccaat 600
ttscctata gggngncgtt taaattcntt ggcgg                                     635

```

<210> 153

<211> 2328

<212> DNA

<213> Homo sapiens

<400> 153

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gagaaccgcg ccgcccgcctc ggccccgcgg aagccccgcc gcgccatgtc ttcgcctccc 180
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ttgtgcagaa acaccacat acaggagaca ccaaagaaga gaaagacaag gatgaccagg 300
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<210> 154
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 <213> Homo sapiens

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 <223> n equals a,t,g, or c

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<210> 156

<211> 1006

<212> DNA

<213> Homo sapiens

<400> 156

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<210> 157

<211> 1686

<212> DNA

<213> Homo sapiens

<400> 157

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1686

<210> 158

<211> 4147

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (13)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (292)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (4145)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (4146)

<223> n equals a,t,g, or c

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<210> 159

<211> 1242

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (1235)

<223> n equals a,t,g, or c

<220>

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<222> (1236)

<223> n equals a,t,g, or c

<400> 159

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<210> 160

<211> 2229

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (29)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (43)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (55)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (59)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (128)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (301)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2226)

<223> n equals a,t,g, or c

<400> 160

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gagtgttga attacaggcg tgagccatca catctggcct gtttatgggt agttaattca 240
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ncaatattat taaaatactc atttggaata gaattccata tgggttaacc agagtactgt 360
tgggatgggt gtggctatct gcacgtagca gatttcctgc ttttattcaa agmcaatatt 420
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<210> 161

<211> 1920

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (43)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (119)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1755)
<223> n equals a,t,g, or c

<220>
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<222> (1766)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1832)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1841)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1915)
<223> n equals a,t,g, or c

<400> 161
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<210> 162

<211> 2619

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2546)

<223> n equals a,t,g, or c

<400> 162

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<210> 163

<211> 1419

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (230)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (624)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (697)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1187)

<223> n equals a,t,g, or c

<400> 163

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<210> 164

<211> 3810

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (189)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2523)

<223> n equals a,t,g, or c

<400> 164

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<210> 165

<211> 817

<212> DNA

<213> Homo sapiens

<400> 165

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<210> 166

<211> 1578

<212> DNA

<213> Homo sapiens

<220>

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<223> n equals a,t,g,.or c

<220>

<221> misc feature

<222> (38)

<223> n equals a,t,g, or c

<400> 166

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<210> 167

<211> 1694

<212> DNA

<213> Homo sapiens

<400> 167

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aaaaaaaaact cgag 1694

<210> 168

<211> 1636

<212> DNA

<213> Homo sapiens

<400> 168

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ttgaagagac cgctgg 1636

<210> 169

<211> 667

<212> DNA

<213> Homo sapiens

<400> 169

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<210> 170

<211> 3598

<212> DNA

<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (16)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (22)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (964)
<223> n equals a,t,g, or c

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<210> 171

<211> 940

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature

<222> (12)

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<220>

<221> misc feature

<222> (919)

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<220>
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<210> 172
<211> 1458
<212> DNA
<213> Homo sapiens

<400> 172
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<210> 173

<211> 2709

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (2595)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2622)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2659)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2670)

<223> n equals a,t,g, or c

<400> 173

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<210> 174

<211> 1013

<212> DNA

<213> Homo sapiens

<400> 174

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gcctcagcc ctggctccag ctggcagcaa gcaccgagca tgccctcccc acccagagga 900

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<210> 175

<211> 1697

<212> DNA

<213> Homo sapiens

<400> 175

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catttggtgc ttgacgtatt attgtccttt gattccaaat aatatgtttc cttccctcat 1620
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aaaaaaaaa aaaaaaa 1697

<210> 176

<211> 1409

<212> DNA

<213> Homo sapiens

<400> 176

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cccgggctgc aggaattccg ctgctggcct ggggttgttg ttgaggccgg gtctccgctc 180
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<210> 177
<211> 1503
<212> DNA
<213> Homo sapiens
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<400> 177						
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tgttccacct	gacagtgttt	gtctttcata	gactttccag	aatagacata	gtcaagatca	180
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<210> 178
<211> 1378
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (3)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (82)
<223> n equals a,t,g, or c

<400> 178
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actttattct tctggtgagc tccctgaata tttatttttc tgattataaa ttttctatat 180
tagtagcatt ttttaattat tacttcttca ctatagagca tttactttta gtctctagat 240
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acaaactttt ttttgtcatt aaacaatata gtataacaac tatttacaaa gcatttacat 600
tgtattagct attataggta atctagagat gatttaaagt gtatggtagg atgtgcacag 660
gttatatgca aatactacac cattttctat aagggacttg aacatcatgg actttagtag 720
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<210> 179
<211> 2251
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (2020)
<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2050)

<223> n equals a,t,g, or c

<400> 179

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ctcccgcgcc cccttcaccc cgacctggcc gcggagccgc gagcgtgaag ccgccgcctt 180
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<210> 180

<211> 1000

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature
<222> (20)
<223> n equals a,t,g, or c

<400> 180
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aaaaaaaaaa aaaaaaaaaa maaaaaaggg gggggccccc 1000

<210> 181
<211> 1429
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (761)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1407)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1420)
<223> n equals a,t,g, or c

<400> 181
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gcatgatgcc ctccccctcag cgcaggctgc agagcccggc cccacctccc tgcgcccttg 180
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tgtctcccca cagacctgca gtgaggggcc ctccatgcgc agatgagggg cactgacccc 300
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<210> 182

<211> 2725

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2713)

<223> n equals a,t,g, or c

<400> 182

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aggaagacac tccaattct gtttgggagc ctgcgaagggt gcttgtgttt gtcagacaaa 120
tacagccagg cctgccacc cttaggctcc aaagtccgga ggtgcagaaa gccaggacca 180
agagacaggc agctcaccag ggtggacaaa tcgccagaga tgtggtgcat tgcctgttt 240
tcacttttgg catgggttta tgcctgacct accatgtatg gggagatcct gtcccctaac 300
taccctcagg catatccag tgaggtagag aaatcttggg acatagaagt tcctgaaggg 360
tatgggatcc acctctact caccatctg gacattgagc tgcagagaa ctgtgcgtat 420
gactcagtgc agataatctc aggagacact gaagaaggga ggctctgtgg acagaggagc 480
agtaacaatc cccactctcc aattgtggaa gagttccaag tccatacaa caaactccag 540
gtgatcttta agtcagactt ttccaatgaa gagcgtttta cgggggttgc tgcatactat 600
gttgccacag acataaatga atgcacagat tttgtagatg tccctttagg ccacttctgc 660
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aaggcaaaat atgtcttttag agatgtggtg cagataacct gtctggatgg gtttgaagtt 1200
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tgtaaagggg acagtgggtg ggcctttgct gtacaggatc ccaatgaca gaccaaattc 2160
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gactaatcca gatacatccc accagcctct ccaagggtg tggaccaatgc attaccttct 2340
gttccttatg atattctcat tatttcatca tgactgaaag aagacacgag cgaatgattt 2400
aaatagaact tgattgttga gacgccttgc tagaggtaga gtttgatcat agaattgtgc 2460
tggtcataca tttgtggtct gactccttgg ggtcctttcc ccggagtacc tattgtagat 2520
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tttctctttt acctgttcaa aattccattt acttgatcat tctcagtac cactgtctat 2640
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aaaaaaaaaa aaaaaaaaaa aaaag 2725
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<210> 183

<211> 1751

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (344)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (416)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1617)

<223> n equals a,t,g, or c

<400> 183

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gggggcggca ggttgcggcg gcgccggagc gggctctccag gctggcgagc gccaggaca 60
ggcatgttgt tgggactggc ggccatggag ctgaaggtgt ggggtgatgg catccagcgt 120
gtggtctgtg gggctctcaga gcagaccacc tgccagggaag tggatcatgc actagcccaa 180
gcaataggcc agactggccg ctttgtgctt gtgcagcggc ttcgggagaa ggagcggcag 240
ttgctgccac aagagtgtcc agtgggcgcc caggccacct gcggacagt tgcagcagat 300
```

```
gtccagtttg tcttgaggcg cacagggccc agcctagctg ggangccctc ctcagacagc 360
tgtccacccc cggaacgctg cctaattcgt gccagcctcc ctgtaaagcc acgggntgcg 420
ctgggctgtg agccccgcaa aacctgacc cccgagccag cccccagcct ctcacgccct 480
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gccgggagca ggcccgggag cgagagggac aggcacgcct gcaggcacta agtgcggcca 660
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ccaaccaca gggccctctg cctcagccag agaggagtcc ctccctggcg ctccctctga 1140
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cctggagaag catggggcgt agccagctcg gaacttgcca ggcccaaaag gccacgactg 1560
cctgttgggg acaggagatg catggacagt gtgctcaagc tgtgggcatg tgcttgnetg 1620
cgggagaggt ccttcaactgt gtgtacacag caagagcatg tgtgtgccac ttccctacc 1680
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aaaaaaaaaa a 1751
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<210> 184

<211> 2200

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2096)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2140)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2157)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2181)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2184)

<223> n equals a,t,g, or c

<400> 184

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ggcacgagca ggcacatact gaagggaac ttctcaatcc gtacagccaa gatgcagcag 60
catgtgtgtg aaaccatcat ccgcactctt aaaagacatg gagctgttca gttgtgtact 120
ccactactgc ttccccgaaa cagacaaata tatgagcaca acgaagctgc cctattcatg 180
gaccacagcg ggatgctggt gatgcttctt ttgacctgc ggatcccttt tgcaagatat 240
gtggcaagaa ataatatatt gaatttaaaa cgatactgca tagaacgtgt gttcaggccg 300
cgcaagttag atcgatttca tcccaaagaa cttctggagt gtgcatttga tattgtcact 360
tctaccacca acagctttct gccactgct gaaattatct acactatcta tgaaatcatc 420
caagagtttc cagcacttca ggaaagaaat tacagtattt atttgaacca taccatgtta 480
ttgaaagcaa tactcttaca ctgtgggac ccagaagata aactcagtca agtctacatt 540
attctgtatg atgctgtgac agagaagctg acgaggagag aagtggaagc taaattttgt 600
aatctgtctt tgtcttctaa tagtctgtgt cgactctaca agtttattga acagaaggga 660
gatttgcaag atcttatgcc aacaataaat tcattaataa aacagaaaac aggtattgca 720
cagttggtga agtatggctt aaaagaccta gaggaggtt ttggactgtt gaagaaactc 780
ggcatcaagt taccaggtctt gatcaatttg ggcttggttt acaagggtgca gcagcacaat 840
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tctttcagag aggaaaggca gacagagaag cgtgtgctgg agactgaact tgtggaccat 1320
gtactgcaga aactgaggac taaagtcact gatgaaagga atggcagaga agcttccgat 1380
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agaatcttat ttaacccta aagaactgtc gttaacctca ttcaaacaga cagaggctta 1860
tactggaata atggaatgtt gtacattcat cataatttaa aattaaatc taagaagagg 1920
ctgggtgcag tggctcacac ctttaatccc agcactttgg gaagccaagg caggaagact 1980
gcttgaaacc aggagtttga gaccagcctg agcaacaaag caagaccca tctctataaa 2040
aactaaaaaa attagttggg catggtggca catgcctgta gtcccagcta ctccanaggc 2100
tgagatggat catctgagcc tcaggaggtt gacgctgcan tgactgtgac tgcgccnctg 2160
actccatctg gggcaacaga ncangacct gcttaataac 2200
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<210> 185

<211> 1987

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (523)

<223> n equals a,t,g, or c

<400> 185

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ggaaatatga ctttgattct tcggaggtgc ttcagggact ggactttttt ggaaacaaga 180
agtctgtccc aggtgtgtgt ggagcatcac aaacacatca gaagcccaa aatggagaga 240
aaaaagaaga gagcctaact gaaaggaaga gggagcagag caagaaaaaa aggaagacga 300
tgacttcaga aattgcttcc caagaagaag gtgctactat acagtggatg tcatctgtag 360
aagcaaagat tgaagacaaa aaagttcaga gagaaagtaa actaacttcc ggaaagttgg 420
agaatctcag aaaagaaaag ataaacttct tgcggaataa acacaaaatt cactccaag 480
gaaccgatct tcctgacca attgctacat ttcagcaact tgnaccagga atataaaatc 540
aattctcgac tacttcagaa cattctagat gcaggtttcc aaatgcctac gccaatccaa 600
atgcaagcca tcccagttat gctgcatggt cgggaacttc tggcttctgc tccaactgga 660
tctggaaaaa cattagcttt tagcattcct attttaatgc agctgaaaca acccgcaaat 720
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gagttaataa aaatttctga gggaaacagga ttcagaatac acatgatcca caaagcagca 840
gtggcagcca agaaatttg acctaaatca tctaaaaagt ttgatattct tgtgactact 900
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agtgaactt ttgcatatga tgttgaacag tggtgcaaac tcaacctgga caatgtcatc 1140
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aacacagtcc acagtttcag agcaggaaaa atctgggttc tgatttgtag agccttgcta 1440
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tcagtggaa atattccacag gataggtcga actggaagag cagggaataa gggaaaagca 1560
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aagaaaaaga tgattaagaa accattggaa agggagagca ttagtacaac tccaaaatgt 1740
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tttatgatcc cagcatgaat gttattttca tggaaactt gaagtcttac agtcacctgt 1920
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<210> 186

<211> 1737

<212> DNA

<213> Homo sapiens

<400> 186

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ggatgatatg tgggcaaaat cacttatgaa agtagaagca agaatacagtt ggtttgctac 180
cacataaagc catgctgttt ttggtcaaac tgtgtaaact ggaaaaatc acatcatttc 240
tgagtttaat cacttttaga tatattcaca ttgttttggt gaatttgctg aattgaattg 300
ttttctttc tcaaatctgt gatctctttt ctttatcctg tttctttggt ctttctggtt 360
```

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gctttcttat ttttcttttg ttccattctt ttcttacttt tttccctttt ccttttttgg 420
ggaggctggc tagtagtgtg tgagaaaaga atagaagtga aatttgcata atgaatgtaa 480
aagggaaata aaagtctttt gaaggtagct atactagcac ttttgatcat cttcagggcc 540
cacaaaaatg ttgtcaagat tttaaaggtt tataattctg cttagctct agtttgact 600
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cctcctgtga ctgcaacgtc ttactgattg ggacagttgc caggaggata ccaacttgat 720
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ttttaccctt ttgtgaagca gctatacgtg gcatacatgt atttaaagaa aaaaaaatag 1440
atgtagagtg ttttttttac acttttaact tagcatgtgg tgttgaagta ttactgtaga 1500
tcaagtttgt cttccgcact aagatgtgag gaaattgtga tttgttctct ccaccacaaa 1560
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gtatatattt cttgccataa tggtaaagga ctgattgata tatttaagag ttaataaatt 1680
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<210> 187

<211> 1132

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1131)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1132)

<223> n equals a,t,g, or c

<400> 187

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agatcctgga gtcccagagg cccctcgcag gcatecctgt agcccatcc agtggtgag 180
gaggctccag gcctgaggac caagggatgg ccgactcgg cggtttgagg aggatgcagg 240
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atcagacaac tccctgcatg caaaccccta gtaccctctc acaccgcac ccgcgcctca 360
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gtcacatatc accgtggtga tggcgtcacg tggccatgta gacgtcacga agagatatag 480
cgatggcgtc gtgcagatgc agcacgtcgc acacagacat ggggaacttg gcatgacgtc 540
acaccgagat gcagcaacga cgtcacgggc catgtcgacg tcacacatat taatgtcaca 600
cagacgcggc gatggcatca cacagacggg gatgatgtca cacacagaca cagtgaacaa 660
```

```

acacaccatg acaacgacac ctatagatat ggcaccaaca tcacatgcac gcatgccctt 720
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ggccaaggta cccacaggat cccatccctt cccgcacagc cctgggcccc agcacctccc 840
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aactcccagc cctgcctgtg gcccgttgaa atgttggtgg cacttaataa atattagtaa 1080
atccttaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa nn 1132

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<210> 188

<211> 1267

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (25)

<223> n equals a,t,g, or c

<400> 188

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<210> 189

<211> 3787

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (22)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (155)

<223> n equals a,t,g, or c

<400> 189

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3787

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<210> 190

<211> 554

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (520)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (542)

<223> n equals a,t,g, or c

<400> 190

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<210> 191

<211> 874

<212> DNA

<213> Homo sapiens

<400> 191

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<210> 192

<211> 2103

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (140)

<223> n equals a,t,g, or c

<400> 192

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<210> 193

<211> 1317

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1314)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1315)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1316)

<223> n equals a,t,g, or c

<400> 193

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<210> 194

<211> 1252

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1231)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1240)

<223> n equals a,t,g, or c

<400> 194

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<210> 195

<211> 1688

<212> DNA

<213> Homo sapiens

<400> 195

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<210> 196

<211> 756

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (756)

<223> n equals a,t,g, or c

<400> 196

ggcacgagcc gccctcggcg tcctctgtag cgggcgacct aggccgcggg acccgagcgg 60
aggtagaggc cagggcagcg cgtccgggag cggagtccgc gcccgccgcc gccatgccgg 120

```

acagctggga caaggatgtg taccctgagc ccccgcgccg cacgccggtg cagcccaatc 180
ccatcgtcta catgatgaaa gcgttcgacc tcatcgtgga ccgacccgtg accctcgtga 240
gagaatttat agagcggcag cacgcaaaga acaggtatta ctactaccac cggcagtacc 300
gccgcgtgcc agacatcact gagtgcagg aggaggacat catgtgcatg tatgaagccg 360
aaatgcagtg gaagaggacg tacaaagtcg accaagaaat tatcaacatt atgcaggatc 420
ggctcaaagc ctgtcagcag agggaaggac agaactacca gcagaactgt atcaaggaaag 480
tggagcagtt caccaggtg gccaaaggcct accaggaccg ctatcaggac ctgggggcct 540
acagttctgc caggaaagtc ctggccaaac agaggcagag gatgctgcaa gagagaaaag 600
ctgcaaaaaga gccgcgcgct gccacctcct gaggcagctg tgggtgcccc tgctgtgtgg 660
ctctgtatga ctgttctga aatataaagc cctgcaacct gaaaaaaaaa aaaaaaaaaa 720
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaattn 756

```

<210> 197

<211> 1471

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (458)

<223> n equals a,t,g, or c

<400> 197

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ttggctgctc ctgacctcag caaaccaaga gggatcact gggatacatc agattggatg 60
ccaagcgttc ctctgccgga catacaagag ttccccaact atgaggtgat tgatgagcag 120
acacccctgt actcagcaga tccaaacgcc atcgatacgg actattaccc tggaggctac 180
gacatcgaaa gtgattttcc tccaccccca gaagacttcc ccgcagctga tgagctacca 240
ccgttaccgc ccgaattcag caatcagttt gaatccatcc accctcctag agacatgcct 300
gccgcgggta gcttgggttc ttcatcaaga aaccggcaga ggttcaactt gaatcagtat 360
ttgcccaatt tttatccctc cgatatgtct gaacctcaaa caaaaggcac tgggtgagaat 420
agtacttgta gagaacccca tgccccttac ccgccagngt atcaaagaca cttcgaggcg 480
cccgtgtcgc agagcatgcc catgtctgtg tacgcctcca ccgcctcctg ctctgacgtg 540
tcagcctgct gcgaagtgga gtccgaggtc atgatgagtg actatgagag cggggacgac 600
ggccacttcg aagaggtgac gatcccgccc ctggattccc agcagcacac ggaagtctga 660
ctctcaactc ccccaaaagt gcctgacttt agtgaacctc gaggtgatgt gagtaatccg 720
cgctgttctt tgcagcagtg cttccaagct ttttttggtg agccgaatgg gcatggctgc 780
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cctgttttaga accaaaacca ccatgacaca gtttttatag tgtctgtata tttgtgatgc 1380
aatgggtctt taaaggtttt taatgaaaac taccattagc cagtccttct tactgacaat 1440
aaattattaa taaaataaaa aaaaaaaaaa a 1471

```

<210> 198

<211> 692

<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (43)
<223> n equals a,t,g, or c

<400> 198
gtgaattggt aattcgacct cccctatagg gccgaatttg ggntaccggg cccccccctt 60
agtgcggctt gctcttgga gttcaggctc ggttgtcttt tgggagccat ggagagtgc 120
ttttatctgc gttactacgt ggggcacaag ggcaagttcg gccacgagtt cctggagttt 180
gagtttcgac cggacgggaa gttaagatat gccacaaca gcaattacaa gaatgatgtc 240
atgatcagaa aagaggctta tgtacataaa agcgtgatgg aggaactgaa gagaataatt 300
gacgacagtg aaattaccaa agaggatgat gcattgtggc ctcctcctga ccgagtgggc 360
cggcaggagc ttgaaatcgt cattggagat gaacacattt cttttacaac atcaaaaatt 420
ggttccctta ttgatgtcaa tcaatccaag gatccagaag gcttacgagt attttattat 480
cttgtccagg acctgaagtg tttggtcttc agtcttattg gattacactt caagattaaa 540
ccaatctaga ctgaatattg gtgtggacat ggggggtggg tgggagtaga aaattttgtg 600
tatatcaggg cagtattttt ttatgaacta taaatgattg tctttaataa atatgtgata 660
aatccaatt tttattattt tataaagacc tg 692

<210> 199
<211> 1573
<212> DNA
<213> Homo sapiens

<400> 199
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cattacaaaag ccgccgactc gaagcgtgag cagttccgga ggtacttgga gaagtcgggg 120
gtgctggaca cgctgaccaa ggtgttggtg gccttatatg aagaaccaga gaaacctaac 180
agtgcctttg attttttaa gcatcactta ggagctgcta ctccagaaaa tccagaaata 240
gagctgcttc gcctagaact ggccgaaatg aaagagaagt atgaagctat tgtagaagaa 300
aataaaaaac tgaaagcaaa gcttgctcag tatgaaccac ctccaggagga gaagcgtgct 360
gaataggatt ctctcagtt tgaaagacaa tgaaaaatgg ttttgtatga cttgaatagt 420
ttgtatagta tataatcttt tctgaacaga tgctatagaa ctcttttaatt atgtttaatt 480
cacctatcac actctgttaa aaacacatag aatcatcaat aaaaactcaa tataactttc 540
tttgggtctt aaagcaggag aatccaaagt aaatcctgaa caaaacctaa acacagccat 600
ctaactcatt accttaaaa acattctgkt tattagtctg attaggaatg atggcactgg 660
ttgtatttta gccagacag tttagcatgg agctattcct tgggtgcagt caggatatga 720
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gagagatctg tgtgacacaa gatgcttttg tacgggttcc catgaatctt ctgctcttgt 840
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aaaaaaaaaa aaa 1573

<210> 200

<211> 2742

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (26)

<223> n equals a,t,g, or c

<400> 200

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tattcacaga tgccatcaag ctgaatcctc gcttggccat tttgtatgcc aagagggccca 120
gtgtcttcgt caaattacag aagccaaatg ctgccatccg agactgtgac agagccattg 180
aaataaatcc tgattcagct cagccttaca agtggcgggg gaaagcacac agacttctag 240
gccactggga agaagcagcc catgatcttg cccttgccctg taaattggat tatgatgaag 300
atgctagtgc aatgctgaaa gaagttcaac ctagggcaca gaaaattgca gaacatcgga 360
gaaagtatga gcgaaaacgt gaagagcgag agatcaaaga aagaatagaa cgagttaaga 420
aggctcgaga agagcatgag agagcccaga gggaggaaga agccagacga cagtcaggag 480
ctcagtatgg ctcttttcca ggtggctttc ctgggggaat gcctggtaat tttcccgagg 540
gaatgcctgg aatgggaggg ggcagtcctg gaatggctgg aatgcctgga ctcaatgaaa 600
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aaccgatttt ttttatccaa tgtgaattat aaatgagata atccacagtt attcattgtg 2040
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gcatttgagc ttgtgtgttc ttttgttaat gtgtagagtt ctcctttctc gaaattgcc 2580
gtgtgtactt ggcttaactc aagaacagtt tcttctggat tccttatttg atttatttaa 2640
cctaattata ttctaataatt gcaaataatta ccataagtgg gtaaaagtaa aattcctctt 2700
ctgaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaggggggg gg 2742
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<210> 201

<211> 1417

<212> DNA

<213> Homo sapiens

<400> 201

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aatgtcatag gtatgcataa gatgactcca ccaattaaag atctgctgcc tagactcacc 180
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acatctcttc atgtaattca ggcagttatg ggagccctag agggcctgag agttgctatt 840
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agagatgtat attggaaaat ttacaactcc atctacattg gttcccagga cgctctcata 960
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cttgctttga tttggtgatg taaactttta aacattgcag atcagtgtag aactgggtcat 1140
agaggaagag ctagaaatcc agtagcatga tttttaaata acctgtcttt gtttttgatg 1200
ttaaacagta aatgccagta gtgaccaaga acacagtgat tatatacact atactggagg 1260
gatttcattt ttaattcatc tttatgaaga tttagaactc attccttgtg tttaaaggga 1320
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ctcgaggggg gcccgtagcc aattcgccgt atagtga 1417
```

<210> 202

<211> 1512

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (855)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1512)

<223> n equals a,t,g, or c

<400> 202

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aacttgagaga gtactcgggt tcgtgaactt cccggaggcg caatgagctg cattaacctg 120
cccactgtgc tgccyggctc cccagcaag acccgggggc agatccagggt gattctcggg 180
ccgatgttct caggaaaaag cacagagttg atgagacgcg tccgtcgctt ccagattgct 240
cagtacaagt gcctggtgat caagtatgcc aaagacactc gctacagcag cagcttctgc 300
acacatgacc ggaacacccat ggaggcrctg cccgcctgcc tgctccgaga cgtggcccag 360
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gagttctgcg aggccatggc caacgccggg aagaccgtaa ttgtggctgc actggatggg 480
accttycaga ggaagccatt tggggccatc ctgaacctgg tgccgctggc cgagagcgtg 540
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aaaaaaaaa an 1512
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<210> 203

<211> 419

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (384)

<223> n equals a,t,g, or c

<400> 203

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tccggggagc ctggagctgg ggggaaggcc ggggacagcc cggccctgcc ccctcccccg 120
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tgggcagggt cccgctggcc tgggtgcttg cgctgtgcgg ctggggcgtg catggcccc 240
aggggcacgc argctgaaga aagtcccttc gtgggcaacc cagggaatat cacaggtgcc 300
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cggggactca cgggcaccct tcggtgtcag ctccaggttc agggagagcc ccccgaggtta 360
cattggcttc gggatggaca gatnctggag ctgcgaggaca gcacccagac ccaggtgtt 419

<210> 204

<211> 2833

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2802)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2822)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2831)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2832)

<223> n equals a,t,g, or c

<400> 204

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tgaggagcag ccagcgggag gcggcggcga gtcggtgagc agctgggaag agcagaaccg 120
gggcggagca cctgcaggcg cgggcggcgg ccccaccatg gcgattcgca agaaaagcac 180
caagagcccc ccagtgtcga gccacgaatt cgtcctgcag aatcacgcgg acatcgtctc 240
ctgtgtggcg atggtcttcc tgctggggct catgtttgag ataacggcaa aagcttctat 300
catttttgtt actcttcagt acaatgtcac cctcccagca acagaagaac aagctactga 360
atcagtgctc ctttattact atggcatcaa agatttggct actgttttct tctacatgct 420
agtggcgata attattcatg ccgtaattca agagtatatg ttggataaaa ttaacaggcg 480
aatgcacttc tccaaaacaa aacacagcaa gttaaataaa tctggtcagc ttagtgcggt 540
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aggaacagaa aatggtgtga atggaacatt aacttcaa atagtagact ctccccgaa 1260
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gctctttgat ttttgctatt gtacggtttc atgcattttt ttaaagggca tttgagggga 1440
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tagtttaggy accaccacca tattttattt tgtttttatt tttgaacatt tttctaata 1560
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<212> DNA

<213> Homo sapiens

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<222> (5584)

<223> n equals a,t,g, or c

<220>

<221> misc feature

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<211> 755

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<400> 206

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<210> 207

<211> 1996

<212> DNA

<213> Homo sapiens

<400> 207

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<210> 208

<211> 1668

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1565)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1598)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1620)

<223> n equals a,t,g, or c

<400> 208

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<210> 209

<211> 2250

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (23)

<223> n equals a,t,g, or c

<400> 209

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aggatcttta aaacattttt aatgaactaa gttgaataaa ggcacaatta aaaactgtca 2220
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa

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2250

<210> 210

<211> 838

<212> DNA

<213> Homo sapiens

<400> 210

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tatttgaaca agttttcctt tattgagtac caagccatgt aatggtaact tggactttaa 720
taaaagggaa atgagtttga actgaaaaaa aaaaaaaaaa aaactcatac agactgaagc 780
gcggtgatta aataatgaaa gagttcgacg cggccgggaa tttaggagggt aaatatcc 838

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<210> 211

<211> 1213

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1206)

<223> n equals a,t,g, or c

<400> 211

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gcccacgcgt ccggcaggaa ccgcggtgct tggacaagag ggggtgcggtg gatactgacc 60
tttgctccgg cctcgtcgtg aagacacagc gcatctcccc gctgtaggct tcctcccaca 120
gaaccgcgtt cgggectcag agcgtctggt gagatgctgt tgccgctgct gctgtgcta 180
cccatgtgct gggcgtgga ggtcaagagg ccccggggct tctccctcac caatcatcac 240
ttctacgatg agtccaagcc ttccacctgc ctggacggtt cggccaccat cccatttgat 300
caggtcaacg atgactattg cgactgcaaa gatggctctg acgagccagg cacggtgccc 360
tgtcctaata gcagcttcca ctgcaccaac actggctata agcccctgta tatccctccc 420

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aaccgggtca acgatgggtgt ttgtgactgc tgcgatggaa cagacgagta caacagcggc 480
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atggccgagg tcaccgcgga agggttccgt ctgaagaaga tccttattga ggactggaag 600
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aaaaanaaaa aaa 1213
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<210> 212

<211> 969

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (922)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (955)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (958)

<223> n equals a,t,g, or c

<400> 212

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gttgtatgta aaagctaagg aaaccttttc ttttgggaaga tcagtataaa catgctgctt 180
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cagcgcctat attaaggcac atttgaataa attctattac cagttaaaaa aaaaaaaaaa 900
```


aaaaaaaaa aaaaaaaaaa anaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaancncng 960
ggggggggg 969

<210> 213

<211> 1694

<212> DNA

<213> Homo sapiens

<400> 213

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gcgatggcca aggtgtcggt gctgaacgtg gcggctcctg agaaccgag ccctttccac 180
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acctaccatg gacaggagtt catccgagtg ggctactacg tcaacaacga gtacctcaac 480
cctgagctgc gtgagaaccc gcccatgaag ccagatttct cccagctcca gcggaacatc 540
ttggcctcga acccccggt gaccgcctc catatcaact gggacaacaa catggacagg 600
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aaaaaaaaa aaaa 1694

<210> 214

<211> 1210

<212> DNA

<213> Homo sapiens

<400> 214

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tggttaccat tatccccaac ttcagtctg acaagatcta cctcatcggg ggggacctgg 180
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tgagggatca tgaacgaaag gaagaaactt ttacccaat gccagccct tactacatgg 360

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<210> 215

<211> 1776

<212> DNA

<213> Homo sapiens

<400> 215

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gtcgggcttc ctgcggcgtt gaggtctctc gccttggcgg gcgctgggtc cttttgcatt 180
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gactcctctc cgcagctgtg gcccgaaacc gatttcagga atccgccaag gaaggcgtct 300
aaggccagct tagactttaa gcgttacgta accgatcgga gattggctga gaccctggcg 360
caaactctatt tgggaaaacc aagtagacct ccacacctac tgctggagtg caatccaggt 420
cctggaatcc tgactcagge attacttgaa gctgggtgcca aagtgggtgc gctcgaaagt 480
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atgtattgtc aagtactgta caatgaaatt gtttaaattt taatatgatt taagcttttt 1740

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agaaattaaa atatttttaa taagaaaaaa aaaaaa

1776

<210> 216

<211> 1418

<212> DNA

<213> Homo sapiens

<400> 216

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gccatacaga attgtgtatt caccagcatc atgaaacagt tgtggtcttt tgagttgatc 180
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acttcactta gagactggag tcctgcttat aatcatgcat ataaccttta ctttgatgga 360
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cagaagaaaa gcaggaagaa tttaaatgtt taattttttt tttaaattga cttttctagt 480
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aaagaagaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa 1418

<210> 217

<211> 2200

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2188)

<223> n equals a,t,g, or c

<400> 217

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cacgagtgcc gccagcatgt ctgacaaact gccctacaaa gtcgccgaca tcggcctggc 120
tgcctgggga cgcaaggccc tggacattgc tgagaacgag atgccgggcc tgatgcgtat 180
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gcagaccctg tacttcaagg acggggccct caacatgatt ctggacgacg ggggcgacct 480
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<210> 218

<211> 1853

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (890)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1794)

<223> n equals a,t,g, or c

<400> 218

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tggtagggcg cgtgaagagc cttcaggcgc tggcgagggt catcgaggct gaacttcggt 180
ccaccaagca ctgggagctt actgcggagg gcgaggagat tgcccgagg ggcagccatg 240

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<211> 1093

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1090)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1091)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1092)

<223> n equals a,t,g, or c

<400> 219

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<210> 220

<211> 2155

<212> DNA

<213> Homo sapiens

<400> 220

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<210> 221

<211> 1264

<212> DNA

<213> Homo sapiens

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<221> misc feature

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<223> n equals a,t,g, or c

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<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (17)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (22)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (125)

<223> n equals a,t,g, or c

<400> 221

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<210> 222

<211> 2085

<212> DNA

<213> Homo sapiens

<400> 222

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<210> 223

<211> 2921

<212> DNA

<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2919)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2920)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2921)

<223> n equals a,t,g, or c

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<210> 224

<211> 4395

<212> DNA

<213> Homo sapiens

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<221> misc feature

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<220>

<221> misc feature

<222> (4382)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (4391)

<223> n equals a,t,g, or c

<400> 224

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<210> 225

<211> 3035

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2911)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2959)

<223> n equals a,t,g, or c

<400> 225

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<210> 226

<211> 1511

<212> DNA

<213> Homo sapiens

<400> 226

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<210> 227

<211> 2239

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2238)

<223> n equals a,t,g, or c

<400> 227

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agaaccattt gccacacccc gtttagttac agctgaactc ctccatcttc caaatcaatc 720
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<210> 228

<211> 2346

<212> DNA

<213> Homo sapiens

<400> 228

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<210> 229

<211> 2246

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2235)

<223> n equals a,t,g, or c

<400> 229

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<210> 230

<211> 2002

<212> DNA

<213> Homo sapiens

<400> 230

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```

```

acactgactc ctccttcctg tctaccttaa tcatgaaacc gaattcatgg gggtgtattc 1500
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gtgctagggg gtaggggcct ctccctcact gctggactgg agctgggctc ctgtagacct 1620
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ttttctgcct atgctggaat agctccctct tctggtcctg gctcaggggg ctgggatttt 1920
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aaaaaaaaaa aaaaaaaaaa aa                                2002

```

<210> 231

<211> 994

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (394)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (853)

<223> n equals a,t,g, or c

<400> 231

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gccgaggcct gggttacaag cagcaagtgc gcggttgggg cactgcgag gccgttttag 180
aaaactgttt aaaacaaaga gcaattgatg gataaatcag gaatagattc tcttgacct 240
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ccaataccat tgactataaa agctattttt gaaagattca agaacaggaa aaagagatat 480
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```

<210> 232

<211> 486

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature
 <222> (49)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (440)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (485)
 <223> n equals a,t,g, or c

<400> 232
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 cgaccacgc gtccgggaac agccttctcc tgccctctct gcacctggac aactcaactc 120
 ctgccaagat gtccctgccag cagaaccagc agcagtgcc acccccaccc aagtgtccct 180
 cacccaaagt tccccaaag agcccagtac agtgtctgcc tccagcttcc tctggctgtg 240
 ccccaagctc tgggggctgt ggccctagctc cgagggcggc tgcttctga accaccacag 300
 gcgccaccac cgatgccggc gccagaggy ccaactcctgt gacagggcag tggtcagcaa 360
 ggcgrggggt ctggstgckg cayggttctg ggggctgctg ctgatccaga tcctgatgct 420
 gagacaagcg atctttgga gaaacaagaa ttcccaagag gccagaaca gcccctctg 480
 gaagnc 486

<210> 233
 <211> 2081
 <212> DNA
 <213> Homo sapiens

<400> 233
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 taagtctttt ggaggacgaa caactggagg ttcgagaaat ggctgctact accttaagcg 180
 gtctgttaca gtgtaacttt cttaccatgg acagtcctat gcagattcat tttgagcaac 240
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 ttccttctgc agagttgggt aaacgccatg ctgggggtgct aggacttgggt gcatgtgttc 360
 tttctagtcc ttacgatgtt cccacctgga tgccccagct cctcatgaat ctcatgtcac 420
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 gactcaccat gacaactggc aggaacataa acagcaattc actgatgacc aactgcttgt 540
 tctcaccgat cttcttgtgt caccatgcta ttatgcatag aaagatgact agtcctcact 600
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```

gttgctaaaa aattgggggt ttgggtgaaga aatctgattg ttgtgtgtat tcaatgtgtg 1260
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```

<210> 234

<211> 516

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (490)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (498)

<223> n equals a,t,g, or c

<400> 234

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cggcacgagg ggccagggtg cgggcctgcg cctccctcgg ctcctggcgc gggcctcggg 60
gagaggggtg gaagatgtct atggatgtga cattcctggg gacgggtgca gcatacccat 120
ctccaaccgg ggggtgcctct gctgtgggcc ttccggtgtga aggcgagts c tggtctttt 180
actgtgggga gggaaacacag acacagctta tgaaaagcca acttaaagca ggagaaatta 240
ccaagatctt catcacacac cttcatggag accatttctt tggccttctt gggctcctct 300
gcacaatcag cctgcagagt ggctccatgg tgtccaaaca gcctattgaa atctatggcc 360
ctgtaggctt cgggacttta tctggcgaac catggaactc tctcamacgg gagctggctc 420
tcattatgt gggtcatgaa ctgggtccta cagcagatca atgtcctgca gaaggaacta 480
aaagaatttn cgcagttnaa tagagcagac agtcct 516

```

<210> 235

<211> 1129

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (807)

<223> n equals a,t,g, or c

<400> 235

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ctgcctaacc ttgagttggc ccccaatccc tctggctgca gaagtcccct taccccaat 120
gagaggagg gcaggaccag atcttttgag agctgagggt tgagggcatt gagccaacac 180
acagatttgt cgcctctgtc cccgaagaca cctgcaccct ccatgcggas caagatgggg 240
aatggaactg aggaagatta taactttgtc ttcaagggtg tgctgatcgg cgaatcagg 300
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accaccatcg gggttgagtt ctccaccgc actgtgatgt tgggcaccgc tgctgtcaag 420
gctcagatct gggacacagc tggcctggag cggtagcgag ccatcacctc ggcgtactat 480
cgtggtgcag tgggggccct cctggtgttt gacctaacca agcaccagac ctatgctgtg 540
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gtgggtaaca aaagtgacct cagccaggcc cgggaagtgc cactgagga ggcccgaatg 660
ttcgtgaaa acaatggact gctcttcctg gagacctcag ccctggactc taccaatgtt 720
gagctagcct ttgagactgt cctgaaagaa atctttgcga aggtgtccaa gcagagacag 780
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ttccagatat cagactgttc cctgttcaca gcacctcag ggtcttaagg tcttcatgcc 1020
ctatcacaaa tacctctttt atctgtccac ccctcacaga ctaggacctt caaataaagc 1080
tgttttatat caaaaaaaaa aaaaaaaaa aaaaaaaaa aaaaaaaaa 1129
```

<210> 236

<211> 1045

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (973)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1001)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1014)

<223> n equals a,t,g, or c

<400> 236

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ttcttttttg ggtacacacc tgctgtctgg ggcgtggtgc tcaaccaggc ctteggcggg 180
ctactgggtg ctgtggttgt caagtacgct gacaatatcc tcaagggtt tgccacctcc 240
ctgtccattg tgctgtccac tgttgccctc attgcctct ttggcttcca cgtggacca 300
ttatttgccc ttggcgctgg actcgtcatt ggtgctgtct acctctacag cttccccga 360
ggtgcagyc aagccatagc ctctgcctct gcctccgcct ccgggcccctg cgttcaccag 420
cagcctcccg ggcagccacc accaccgcag ctgtcttccc accgtggaga cctcatcacg 480
```

```

gagccctttc tgccaaagtc agtgctggtg aagtragggc tggcagcaat ggggggacac 540
aaggaggagg gactgggggtg gaggggtgtg ggcatctgca ggaccaagt cgccaccctc 600
cggggccttg ctcctctggg tttgggagat ggtcttttct ccaggtcac tgagacttct 660
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tgacaaaaac tccgagtctt aggaatgacg atgcctactg tggggtagtg ccatagttg 960
gcttttctcc ttncacgttg atatgtatag tcgctttggg nctgccagtt cttntacttg 1020
aatgcttctg gagccaggaa aggca 1045

```

<210> 237

<211> 690

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (666)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (678)

<223> n equals a,t,g, or c

<400> 237

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ggaggagggt ctgccacagc tctccgcacc tctcctctcc cagggcagcc tgtgagcagc 60
aagctgtggc tctgactctg caggaggaca gagcatccct gacgctttca ggggggccct 120
cggcactggc ctttgacctc tccaaggtag caggcccaga ggcagcccc aggctgyggg 180
cgctgacact gggcctggca aaacgcgtgt ggagcctgga gcggcgactg gcagctgcag 240
aagagacagc tgtcagcccc aggaagagcc cccggcctgc agggcctcag ctcttcttac 300
cagaccaga tccccagaga ggtggccctg gacctggagt caggaggcgg tgtccaggag 360
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agacctgaag gtgcagcaca agcgtggccc cgcggggagt ccgcctatga ggggagaggc 480
agtctttgag gccccatca gagaccccc gccaccacct ccacctgcct gtcctgggcc 540
aggactaaca cggctcctca aattccttcc ctgtcaaata aacagctccc ttggttgga 600
aaaaaaaaaa aaaaaaaaaa agtttttttt aattttaagg cgggccaaag ttttttttcc 660
tttttngttg aagggttnat tttttagttt 690

```

<210> 238

<211> 1873

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (568)

<223> n equals a,t,g, or c

<400> 238

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ccccagtatg cgtggctgaa agagctgggg ctccgcgagg aaaacgaggg cgtgtataat 180
ggaagctggg gagggcgggg agaggttatt acgacctatt gccctgctaa caacgagcca 240
atagcaagag tccgacaggc cagtgtggca gactatgaag aaactgtaaa gaaagcaaga 300
gaagcatgga aaatctgggc agatattcct gctccaaaac gaggagaaat agtaagacag 360
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gctgktggtt tatcaaggat gattggagga cctatcttgc cttctgaaag atctggccat 540
gactgattg agcagtggaa tcccgtangc ctgggttgaa tcatcacggc attcaatttc 600
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ttctggagga caacaagctg cctggtgcaa tttgttcctt gacttgtggt ggagcagata 780
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tgagaagggtc tacttgact atcaactaca gtaaagacct tcctctggcc caaggaatca 1620
agtttcagta aagtggtttt agatgaacat cccttaattt gaggtgttcc agcagctgtt 1680
tttgagaaag acaaaagaaa ttaaagtttt ccctgaataa atgcattatt atgactgtga 1740
cagtactaa tccccctatg accccaaagc cctgattaaa tcaagagatt ccttttttaa 1800
aaatcaaaat aaaattgtta caacatagcc atagtacta aaagatgagt taggtggatt 1860
tttattatgg tca 1873
```

<210> 239

<211> 905

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (873)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (874)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (897)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (898)

<223> n equals a,t,g, or c

<400> 239

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gaccacgcag ggcgcggcgc tgcagaacta caacaacgag ctggtcaagt gcatagagga 120
gctgtgccag aagcgggagg agctgtgccg gcagatccag gaggaggagg acgagaagca 180
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ggcacgcaag attgcctctc gcaacgagtt cgaccggacc atcgcggaga cggaggccgc 300
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gaacctgacc aaggctacag cccagacca gaaaagtagc ggcggcaggg acagctgacc 420
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gggcttgtct ctgtggcacc cacactcctg ccctgccagg gaggctctgg ttgtctgagc 720
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ggggg                                           905
```

<210> 240

<211> 1484

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1457)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1471)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1480)

<223> n equals a,t,g, or c

<400> 240

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gtaacaaaac tcaggtaaca accattagct ttgcaagaa gtcagggtga ctagcaagga 60
gtctgtcttct gctacttgga gaagagattt agaattatgt atcttttgtt acagatatac 120
agatatataca atatacagat atacaaataa ggggtgaagat ggagggaatc tgataaagac 180
atcttataaa ttcaacagac acaaagaat ttgatctccc ataagcaact gtgaaattac 240
aataacagat cctgggaagt tctacaattc taattcagtt ttttcaaggg ggaacatggc 300
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<210> 241

<211> 1521

<212> DNA

<213> Homo sapiens

<400> 241

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<210> 242

<211> 1144

<212> DNA

<213> Homo sapiens

<220>

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<222> (1093)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1105)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1106)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1139)

<223> n equals a,t,g, or c

<400> 242

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 cccg 1144

<210> 243

<211> 934

<212> DNA

<213> Homo sapiens

<400> 243

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aatgtatgta taaaaaaaaa aaaaaaaaaa tcga 934
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<210> 244

<211> 915

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (243)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (244)

<223> n equals a,t,g, or c

<400> 244

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915

<210> 245

<211> 1276

<212> DNA

<213> Homo sapiens

<400> 245

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1276

<210> 246

<211> 3366

<212> DNA

<213> Homo sapiens

<400> 246

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<210> 247
<211> 2148
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1259)
<223> n equals a,t,g, or c

<400> 247
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<210> 248
<211> 2225
<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (14)

<223> n equals a,t,g, or c

<400> 248

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cattcaatag tgtgctgtca aagtgtgctt agctcacctg gatataccta cattgtttaa 2160
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aaaaa 2225
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<210> 249

<211> 1204

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1197)

<223> n equals a,t,g, or c

<400> 249

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agtaagaact ctgctagaga ggaaatggct gcttcacatc catcctcctc agctggtggg 180
gtcagtggaa gttctgtcac tggatctggt ttcagtgtct cagaccttgc cccaccacgg 240
aaagcccttt tcacctaccc caaaggagct ggagagatgt tagaagatgg ctctgagaga 300
ttcctctgcg aatctgtttt tagctatcaa gtggcatcca cgcttaaaca ggtgaaacat 360
gatcagcaag ttgctcggat ggaaaaacta gctggtttgg tagaagagct ggaggctgac 420
gagtggcggg ttaagcccat cgagcagctg ctgggattca cccctcttc aggttgatac 480
tgcttgatg gtcacctctg gtgcgcagca agtgcaaagc cagtggggga ctttctcaca 540
gcttacatag ccacccagag atccacagct acgtcactga attgttaatg cacatttgta 600
cttggtttct ctgtatctat tcacaggcaa caaatactta tatgtgtgat ctttcaggga 660
atgttttggt tatttgtttt taaaagtatt ggaatcaga ttaagacaat cagtttcaga 720
gaaccaggag gtttgggggt aagagatact caaaaatttt cacaagccaa gtagggcata 780
tatcagattt ggccaactga atggcgtctg tcctgtcctc catatggtgc ctggaaatat 840
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taaaaaataa gcagtaagca aaatcctttt aaacacagaa atcctgagtt cttctcattg 1140
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aaaa                                              1204

```

<210> 250

<211> 1314

<212> DNA

<213> Homo sapiens

<400> 250

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ccttcgcttg ctccagatca ttggaaaaac cactgaactg gctacttttt aattactatt 180
tgacaacctg ccttcagtct tcagttaata agcaccgaca tatgtttgta aaacaagttg 240
atatggatca tgtcatgaag gctaaatcca tcagagagtt tgataagcga ttcacttcag 300
tcattgtttg ataccaaaac attgatgatt attatactga tgccagtccg agtcctagac 360
tgaagtcatg aggaattcca gtattgtgtc taaattctgt ggatgatgtt ttctcaccga 420
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cttatggagg ccatattggt tttctggagg gaatctggcc aagacagtcc acttacatgg 540
atcgtgtctt caagcaattt gtgcaagcca tggttgagca tggacatgaa ctctcttaac 600
atgtagttct ttgggtgcct tttgtctgaa ccacaattgt gaaggcagct cagcttagtg 660
cacaaatttt aactgttgta tataaagcaa ataagccagc agatgggtga agaggtccag 720
aatgatatgc aaaaactact ttttagagaa acaaaaacaac tttgtagcaa caaattaaat 780
atagtattag attgttactt acgtagattt tatttttact atgccttacc aagtacatcc 840
ttaaacaag tagtatgtac atgaaattgc acttaaccaa aactattgtg taaaacaaat 900
tttaattcct cagggtttta atttaacta gtattttttt agattatttg ttttaggtga 960

```



```
tttaatggta ctttaataac tactaagaaa tattggctat ttcaatgtaa gttataaggt 1020
ggtacattcc taagggtatt tatagttgat gataacatga aaactgaaat aagataaaat 1080
acaacgtgct aaatctttta tgtattctaa ctttaaaaaga caagtgaac aaagttagac 1140
tgacttctat atgtgctcct ttactctgat aatattaaat taggactaac ttatgtttta 1200
taatgattat aatttacatg cttattttta aaatagtata tgtggacaca tatatatcat 1260
tatattaaaa taaattctac cattttaaat tggaaaaaaa aaaaaaaaaa aaaa 1314
```

<210> 251

<211> 1159

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1132)

<223> n equals a,t,g, or c

<400> 251

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ttttatatatt ttagtagaga cgggggtttca ctgtgttagc caggatggtc tcgatctcca 120
ggatgggtctc gatctccagg atgggtctcga tctcctgacg tcgtgatcca cccgcctcgg 180
cctcccaaaa tgctgggatt acaggtgtga gccactgtgc ccggccaaaa gaacagaaat 240
tattttatcc tgaagtaagc tgtttatatt tgggattata ctgaacctat ttgtccaata 300
acctgagttt tcaaataaatt ttagttctat aagtactata attatataaa tattaatgaa 360
ttcagattag ctgaaaggaa aaaaagtaga agcctgacta cttggtgcta actactaaag 420
attttggcag aatcaatggt ggatttggct ttctgtctcc tccccatgc cagcccccca 480
gagtgttctg ccttgtgctg cctcccttca cckggagtgc cacaccctc tctctgccag 540
ttcagctctt cattcttcaa ggccctgacct tgtctgacct ttgtgcctct aaaccctgtg 600
gccccacctc tcttgggtcc tatgtcaggt gatgtttgtg tttttggtta tgcccatctc 660
catagccaga ccaagcactc tggaagccag ggttgggtgc ttatttatct gtttgccatg 720
cagaaaatat cttgcacaaa attacctctg ttaaggaaatc tgaagctgaa tttagtttgg 780
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tcattgacag tttctgattg ccctgagcac caggctctcat cttgcatctc atcctggcct 960
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gaagttgggg ttgaggagag ccagatggct ggagtgggta tttgaaggkc tttctgtcac 1080
ctgttcagtg tggctctgcc caccctgct gacmaagact gactgaaatg tnaaataata 1140
cagaccatct caactcaga 1159
```

<210> 252

<211> 2488

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (64)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2334)

<223> n equals a,t,g, or c

<400> 252

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ccngggacgc gtgggttgct cggcagcttg caaaccttg tttgtaaaca 120
gaacactttt tgatcaggtc cttgaattcc tttgtagtcc tgacgatgac tcccgacact 180
ctgaaagaca gcaggctcctt ttagaattgc tgcaggctgg aggcatagtt caatttgaag 240
agagtgcact catccggatg gcagaaaaag ctgagttcta tcaaatttgt gaatttatgt 300
atgaaagaga acaccaatat gacaaaatta ttgattgcya cttacgtgac cctctgcgag 360
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agaagcagtc tgtatggcag aaagcaatgg atcatattga ggaacycgkg kccctgaagc 480
cttgtaaagc tgcggagctg gttgccaccc acttttctgg acatattgaa acggtcatta 540
aaaaacttca gaaccagggt ttgcttttca aatttttgag gagtcttctt gacccaaggg 600
aagggtattca tgtaaataca gaattactgc aaatatctcc ttgtatcaca gacagttca 660
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gctaccgtct ggaagaaact attcagatta ctgagaagta tcaacttcat gaagtcaccg 780
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<210> 253
<211> 1554
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (6)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (81)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1496)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1523)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1535)
<223> n equals a,t,g, or c

<400> 253
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cttcgcggct gctcaagatg aaccgactct tcgggaaagc gaaacccaag gctccgccgc 180
ccagcctgac tgactgcatt ggcacggtgg acagtagagc agaatccatt gacaagaaga 240
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tgggactagg aaatatatat ctttccaaat ttgccataac agatttaggt ttctttcctt 900
tctttgaagg aaagttaaat tacattgctc ttttatTTTT tccattaaga gactcattgc 960
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cagtttaaaa gtatttttag ctcgtatgac ttgttttcat tcattaataa taatttgaaa 1080
taaaaactaag gaaatggaat cttaaaagtc tatgacagtg taactctaca gtctcaaaat 1140

212

gacctgataa attgataaga caaagatgag attattgggg ctgttcatat tatgattcag 1200
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gttgtgtcct gtgaacaagt cgttactgtg tccattattg gaatggaatt atcactactg 1320
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aattatgaat atttcttgat atttaatgta taggacattt atttatactc aataaatatt 1440
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aggatcccc gagggggggc cangcttacg cgtgncatgc gacgtccaaa gcc 1554

<210> 254

<211> 1506

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (43)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1492)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1501)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1506)

<223> n equals a,t,g, or c

<400> 254

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gtcggcgccg ccgtaatgcg agagccgcag aagagaaccg caacaatcgc aaaatccagg 360
cctcagaggc ctccgagacc cctatggcgg cctctgtggt agcagacacc cccgaagacg 420
acctgagcgg ccccgaggaa gacccgagca ctccagagga ggcctctacc acccctgaag 480
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tttgtgtctg ctgttgtgtg aagattgaca ttaccatga ttttccttag ttactgcaga 1440
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ncccg n                                     1506

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<210> 255
<211> 654
<212> DNA
<213> Homo sapiens

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```

<220>
<221> misc feature
<222> (8)
<223> n equals a,t,g, or c

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```

<220>
<221> misc feature
<222> (632)
<223> n equals a,t,g, or c

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<400> 255
actcacnta ttggaaaagc tggtagcct gcaggteccg gtccggaatt cccgggtcga 60
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cgtctgccat cggcgccatc ctgcaatcta agccacaatg gtgcgcatga atgtcctggc 180
agatgctctc aagagtatca acaatgccga aaagagaggc aaacgccagg tgcttattag 240
gccgtgctcc aaagtcacgc tccggtttct cactgtgatg atgaagcatg gttacattgg 300
cgaatttgaa atcattgatg accacagagc tgggaaaatt gttgtgaacc tcacaggcag 360
gctaaacaag tgtggggtga tcagccccag atttgacgtg caactcaaag acctggaaaa 420
atggcagaat aatctgcttc catcccgcc gtttggtttc attgtactga caacctcagc 480
tggcatcatg gaccatgaag aagcaagacg aaaacacaca ggagggaaaa tcctgggatt 540
ctttttctag ggatgtaata catatattta caaataaaat gcctcatgga caaaaaaaaa 600
aaaaaaaaa aaaaagggs gsggtctag anggtccaag cttacgtacg cgtg 654

```

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<210> 256
<211> 1992
<212> DNA
<213> Homo sapiens

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<220>
<221> misc feature
<222> (558)
<223> n equals a,t,g, or c

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<400> 256
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gtacaactgg cagtatgtgc actgcctctt cctgtggtgc cgggtcctga gcactgcggg 120

```

```

ccccagcgaa scctccagcc cttggtctac ccccttgccc aagtcatcat tggctgtatc 180
aagctcatcc ccaactgccc cttctacccg ctgcgaatgc actgcatccg tgccttgacg 240
ctgctctcgg ggagctcggg ggccttcac cgggtgctgc ctttcatcct ggagatgttc 300
cagcagggtcg acttcaacag gaagccaggg cgcagtagct ccaagcccat caacttctcc 360
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gagcagctgt acgacctcac cctggagtac ctgcacagcc aggcacactg catcggcttc 480
ccggagctgg tgctgcctgt ggtcctgcag ctgaagtcgt tcctccggga gtgcaagggtg 540
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caccggggag gatattcggc agcccgggca gtgcagatc ggaggatgca cctgcaggat 1920
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<210> 257

<211> 2273

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2271)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2273)

<223> n equals a,t,g, or c

<400> 257

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```

```

gctcggcctg ggccactca ctggtccaga agcagctgta ggtgcccacc aagcccatga 180
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gggacgctag aagggtcatg tgtaactat aatcacattt atggtttgga accatcacc 2160
caaggtaaaa aaaaaataaa aggtattccc aggtatgttt ggcaaaataa aataaaggta 2220
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<210> 258

<211> 1504

<212> DNA

<213> Homo sapiens

<400> 258

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tattcaggga tttttttaa aagtcaatca gaaaagggat actggagctt cttcatgtat 180
gtaacagcat attaaactgg agacagtgat gaatcagcta caaaggtaat attgtattaa 240
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tgctgggtga tgaaagatta gttttagaga gaaaatgttc atctgtgcag aggatgcatt 360
ttcttccatt aattctggaa aaaacgttca cagttatata tatggtattt tgcaaaagga 420
ctattaatag aaccttttga gatgaattaa tgtaagaata ttttttaa at aggttactg 480

```

```

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aaaaa 1504

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<210> 259

<211> 1792

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (107)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (487)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1306)

<223> n equals a,t,g, or c

<400> 259

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cgggaaatccc aaagggcggt gtgagcttca aaagtgggaa ctggggctgg gccacagccg 180
gcagcagcag catcttggtg gagtttggtt ccctgcactt ggaattctta cacctcactg 240
aactctctgg caaccaggtc ttcgctgaaa aggtcaggaa catccgcaag gtcctcagga 300
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tggcgagggg ggattctgga ccacaagatg gggcacctgg cctgtttctc cgggggcatg 600
atcgcccttg gcccgaggat gccaaaggaag aaaagagggc ccactaccga gagctcgca 660

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```

<210> 260

<211> 2048

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (66)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (67)

<223> n equals a,t,g, or c

<400> 260

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accctagag gagggcgtgc gggggctctgt tttgcatgcg agccaccct ctggctgctc 180
ctgcgggttc cctgtccagg aagaagcggg tggagtggga tgacaactta gataccgagc 240
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gctggccggc cactaccctc tccaggactc ggagcctgtc ctgctcttcg gcaagatccg 900
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```

<210> 261

<211> 1282

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1244)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1261)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1265)

<223> n equals a,t,g, or c

<400> 261

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cctatagcaa tggaactcag cgatgcaaat ctgcaaacac taacagaata tttaaagaaa 180
aactttgatc ctgatcctgc catccgacgt ccagctgaga aatttcttga atctgttgaa 240
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gaagatgaac caaacaaaat ttgtgaagcc gatcgagtgg ccattaaagc caacatagtg 420
cacttgatgc ttagcagccc agagcaaatt cagaagcagt taagtgatgc aattagcatt 480
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gatgcctttg ctttgccttt gactaatctt ttttaaggcca ctattgaact ctgcagtacc 720
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<210> 262

<211> 599

<212> DNA

<213> Homo sapiens

<400> 262

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ggggccggcc ctgggcctgc tgcaggcgcg gcgctgccgg accagagctt cctgtggaac 180
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gataagaacg agctgaagca ggccctctma gtttcggcta ccggctctct kaccagttcc 480
acgacatcct cattcgaag kttgacaggg argggacggg gcaratcgsc ttcgacgast 540
taatccaagg ctggcatggc ctgcagaggt ttacggatat attcaaagggt ttcggcacg 599

```

<210> 263

<211> 1261

<212> DNA

<213> Homo sapiens

<400> 263

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gggcactcca ggcaccgtgg ggatcagcgt aggtgagctg tggccttttg cgagggtgctg 120
cagccatagc tacgtgcgtt cgtacgagg attgagcgtc tccaccaggt aagtgggcaa 180
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acatcggaat gaccacttaa catctacaac ttccagccct ggggttattg tcccagaatc 540
tagtgaataa aaaaatcttg gaggagtcac ccaggagtca tttgatctta tgattaaaga 600
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agagctaata gagagactga atgggtgaacc tctggataat tttgaatcac tggataatca 840

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a 1261

<210> 264

<211> 1020

<212> DNA

<213> Homo sapiens

<400> 264

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tattccttcc tctttatctc acaatttttg tctccactaa gcaagaagta aactaacact 180
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tcaacatttt gaaatgcaga gggatttggg acatgacgac atggaaaagg gcacttttaa 360
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<210> 265

<211> 571

<212> DNA

<213> Homo sapiens

<220>

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<222> (557)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (565)

<223> n equals a,t,g, or c

<400> 265

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caagggcacg agcatcgggc catgccttct ttggacatcc agaaaagggt cggccttaac 120

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<210> 266

<211> 1350

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1313)

<223> n equals a,t,g, or c

<400> 266

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<210> 267

<211> 1319

222

<212> DNA
<213> Homo sapiens

<220>
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<222> (7)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (61)
<223> n equals a,t,g, or c

<400> 267
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<210> 268
<211> 3694
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (746)
<223> n equals a,t,g, or c

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aatgactgct ccaggaatgt ctacattaag aagaatggct ttactttaca tcgaaacccc 240
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<210> 269

<211> 1242

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (46)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (460)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1233)

<223> n equals a,t,g, or c

<400> 269

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cgactgtgac gaatgatcgc tcggcaccca tcattcgatg agaggacagc caaggactct 600
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<210> 270

<211> 2057

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (22)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2053)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2054)

<223> n equals a,t,g, or c

<400> 270

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<210> 271

<211> 960

<212> DNA

<213> Homo sapiens

<220>

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<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (31)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (951)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (956)

<223> n equals a,t,g, or c

<400> 271

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tgccaggccc agcagccacc acagcgcctg cttcctcggc cctgaaatca tgcccctagg 180
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caatgtcacc tccgtcctgt ttaggaaaaa gaagtgtgac tactggatca ggacttttgt 480
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227

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<210> 272

<211> 1167

<212> DNA

<213> Homo sapiens

<400> 272

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<210> 273

<211> 2771

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (27)

<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

<400> 273
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<210> 274

<211> 1889

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature

<222> (57)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (87)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (113)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1676)

<223> n equals a,t,g, or c

<400> 274

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cattataaac tttttccatt cataaataca taagtgaacc aaagggtttt gtcttttcct 1800
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aaaaaaaaa aaaaaataaa aaaaaataaa 1889

<210> 275

<211> 604

<212> DNA

<213> Homo sapiens

<400> 275

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<210> 276

<211> 1381

<212> DNA
<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1349)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1350)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1358)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1359)
<223> n equals a,t,g, or c

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c 1381

<210> 277

<211> 1149

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (680)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1088)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1098)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1140)

<223> n equals a,t,g, or c

<400> 277

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<210> 278

<211> 811

<212> DNA

<213> Homo sapiens

<400> 278

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<210> 279

<211> 1260

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1249)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1252)

<223> n equals a,t,g, or c

<400> 279

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<210> 280

<211> 1668

<212> DNA

<213> Homo sapiens

<400> 280

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<210> 281

<211> 2328

<212> DNA

<213> Homo sapiens

<400> 281

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gaagcatata aactccgtgc agccagatta gtagaaattg ctgcaaaaaa ccttcaaaaa 180

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<210> 282

<211> 956

<212> DNA

<213> Homo sapiens

<400> 282

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<210> 283

<211> 1402

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (26)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (88)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (97)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (131)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1344)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1355)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1394)

<223> n equals a,t,g, or c

<400> 283

ccccccgcc cccgcacccc cgaaanccag tgaaggtgaa gactccgcgg cccgcgggag 60

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atttcaatgg tgggggttaat atagcatgtt atcctgtcta tcttttaaag atttctgtat 240
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<210> 284

<211> 675

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (20)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (520)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (560)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (618)

<223> n equals a,t,g, or c

<400> 284

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ggcttcsggg catttgtnng acaagcctgt gtcaccatac atgtacctcg tgcgaatttt 660
ggctcagggc aaatt 675
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<210> 285

<211> 1339

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1330)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1331)

<223> n equals a,t,g, or c

<400> 285

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gatggtctcg gggacctccg ccgccgtgga agagtacagt tgtgaatttg gctccgcgaa 180
gtattatgca ctgtgtggct ttggtgggggt cttaagttgt ggtctgacac aactgctgt 240
ggttcccctg gatttagtga aatgccgtat gcaggtggac ccccaaaagt acaagggcat 300
atttaacgga ttctcagtta cacttaaaga ggatgggtgt cgtggtttgg ctaaaggatg 360
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gtactcttgc ttaaggcaag agtttcagat ttactgttga aataaaacca actcttcatt 1260
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1320
aaaaaaaaan naaaaaaaaa 1339
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<210> 286

<211> 1398

<212> DNA

<213> Homo sapiens

<400> 286

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ggcaagtggg caccacaaag gcagtgatca ctttgcagcc tccatgggtc agcgtgttcc 180
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<210> 287

<211> 926

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (20)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (22)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (896)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (917)

<223> n equals a,t,g, or c

<400> 287

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```

<210> 288

<211> 3094

<212> DNA

<213> Homo sapiens

<400> 288

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taagatgttg cccagtcttt ataactcttg tact 3094

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<210> 289

<211> 1983

<212> DNA

<213> Homo sapiens

<400> 289

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<210> 290

<211> 1298

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1224)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1231)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1242)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1262)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1285)

<223> n equals a,t,g, or c

<400> 290

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<210> 291

<211> 2459

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1604)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1605)

<223> n equals a,t,g, or c

<220>

<221> misc feature
 <222> (2374)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (2392)
 <223> n equals a,t,g, or c

<400> 291
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<210> 292
 <211> 570
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (567)
 <223> n equals a,t,g, or c

<400> 292
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 aaaaaaaaaa raagggggcc gctctanagg 570

<210> 293
 <211> 2468
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (2076)
 <223> n equals a,t,g, or c

<400> 293
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 aagagaactg caactgaatg actaatcaga tgatggccat ttctaaataa ggaatttctt 960
 cccaattcat ggatatgagg gtggtttatg attaaggggt tatataaata aatgttttcta 1020

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2468

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<210> 294

<211> 1080

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1038)

<223> n equals a,t,g, or c

<400> 294

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<210> 295

<211> 2695

<212> DNA

<213> Homo sapiens

<400> 295

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tccatatata cagaaattag acaaataata agtctttagt tcaacttaag catatctcaa 180
atgacttctc taaattttaa gttgatcatg ataggatcat aaaagacaga aaagacttaa 240
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<210> 296

<211> 1394

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1238)

<223> n equals a,t,g, or c

<400> 296

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```

<210> 297

<211> 998

<212> DNA

<213> Homo sapiens

<400> 297

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acattccttg tgacgactgc gcatgctcgg aaaggggacg caatcragat cccaaacgcg 180
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gtacagacca aaccgcagtc cacgttacgg atcggcttac tccgcggagt tggcctcatt 240
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tcaagagcac ctcacagctg ctgagccgtc cgctatctgc agtgggtgctg aaacgaccgg 480
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aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa 998

<210> 298

<211> 1666

<212> DNA

<213> Homo sapiens

<400> 298

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gctttkttga gagcgacatg tttgtggaac acagatgtgc agattttgga atggctgctg 180
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cattgtaaac aaatcaaagg aaaagaaacc aagaactgaa ttactgtctg cccattcaca 1560
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<210> 299

<211> 2444

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (402)

<223> n equals a,t,g, or c

<400> 299

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gagagctcca gtgagtccag ctccctctgac agcgaagmcw ccgaaacagg tcctgcctaa 180
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tcagagccct gggcctgtcc cccggggtgg attagtcatg tccagcagca cacgcctagt 360
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251

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ggtggaatca gtgttttaaat cggattttta aaaaacattt tatttccttg tacaattacc 2340
atcctatgta aagatgaaat ttgtgttgag ttgaagattg tcatggaata aagatcacac 2400
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<210> 300

<211> 1026

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1026)

<223> n equals a,t,g, or c

<400> 300

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ggatacaaaa ctatttcagc aatgcagaca attaagtgtg ttgttggtgg cgatgggtgct 180
gttggttaaaa catgtctcct gatatcctac acaacaaaca aatttccatc ggaatatgta 240
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<210> 301

<211> 830

<212> DNA

<213> Homo sapiens

<400> 301

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agtggcagtg ctgagtttca tcctctccag tgcggccaag cacagtgtcg atggcgaatc 180
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ctgttatgag gagaagcaaa gcccttgca gaagcacttg cgggtctgca gcctacgcat 300
gaataggttg gcagggtgtg gctggcggtt ggactacacc ctgagctcca gcctgctgca 360
atccgtggaa gagcccatgg tgcacctgcy gctggagggt gcagctgccc cagggacccc 420
agcccagcct gttgccatgt ccctctcagc agacaagtgc caggtcctcc tggcagaact 480
gaagcaggcc cagaccctga tgagctccct gggctgagga gaagggtgtt ccaggcctgt 540
```

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gtggagccgc cctgcccgtg tggagtcacg ccctctgaac tgctcttcgg gaggcagccc 600
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acttctctct tgagaacttg gctcagggct cctgaggacc tttcccagca ttaccttccc 720
ttcccttgaa aggcaattgt tggctgtttt cataagcagg aaaataaac agaagtataa 780
aggaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 830
```

<210> 302

<211> 3300

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature.

<222> (1158)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3232)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (3280)

<223> n equals a,t,g, or c

<400> 302

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cctgatgggc gcggaggttag ccagcggcgc ctgcatgaag accggactct ggaagagcga 180
aactaccgtc taaggtgggg cgggcgacgc ggtagacggg ctggccacgc ggctcgttcc 240
cccgtcctc ggggccctcc aaggtgtctc cgtagtcacg aggttgagg cagaggagcc 300
gatggctgga ggaagcccac aggcggatgt tccccacttg cctagagggc atccctctgg 360
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gaccaaattg aaaccgaggg aacctgggt cttgggaaga acaacaggaa accaaggtct 1440
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aagttaataa aggtagttag agaaaacagg gcgtcttccg cttgttaggg gnaggtggaa 3240
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<210> 303

<211> 475

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (444)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (451)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (454)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (470)

<223> n equals a,t,g, or c

<400> 303

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ctggagacag gctggactca gctacatccg atactcccag atctgtgcaa aagcagtga 180
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aagtggaaga tgtgtgggca catgttatgg cagattgaaa aggatctcat tccatgggaa 360
aaaaaaaaat cctgtcttgt tcataaattg acaatgtcaa taaattgaaa tatggttcac 420
tgttaaaaaa aaaaaaaaaa aaangggggg nccnttttaa agaatccaan ttac 475
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<210> 304

<211> 2902

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2888)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2891)

<223> n equals a,t,g, or c

<400> 304

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aaacgcagta ccatggtcgg aacgccatac tggatggcac cagagktggg tacacggaaa 180
gcttatggcc ctaaagtcga catatgggtct ctgggtatca tggctattga gatggtagaa 240
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ggaaccccag aacttcagaa tccagagaaa ctttccccaa tatttcggga tttcttaaat 360
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gacttgatcat taaaacctgg ctcttggtt aaggagagcta cgctgtggtt tattcttaag 2820
ttacgtgat aaactaacct ctaacagaaa tatactttgg ttaattttga aaaaaaaaaa 2880
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```

<210> 305

<211> 1553

<212> DNA

<213> Homo sapiens

<400> 305

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gcccgcgggt gtccagtgat ttggagaata ttgacacagg agttaattct aaagttaaga 240
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cagcacaagt agctaagaaa gctcagaaca ccaaagttcc agttcaaccc accaaaacaa 360
caaatgtcaa caaacaactg aaacctactg ctctgtcaa accagtacag atggaaaagt 420
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```

```

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cctctggtct atctcatgaa acctcttctc agaccagttt tctaaacata tattgaggaa 1500
aaataaagcg attggttttt cttaaggtaa aaaaaaaaaa aaaaaaactc gag 1553

```

<210> 306

<211> 1987

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (731)

<223> n equals a,t,g, or c

<400> 306

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gctattggct tcttcattac aggaggaaaa aaaggtcctg aatctgtgcc tccttccctt 180
cttaaagtag tgatgaaacc catagcaact gttggagaaa gctaccaata tcctcctgtg 240
aactgggctg cacttctctc tccacttatg aggctaaatt ttggtgaaga gatccagcaa 300
ctgtgccttg aaattatggt gaccagggca cagtcatccc agaatgcagc tgactattg 360
ggcttgtggg tgacaccacc actgatccac agtctgagtc tgaataccaa gagatatctc 420
ctgatatctg cacctctgtg gataaaacac atctctgatg aacagatcct gggttttgtt 480
gaaaatttaa tgggtgcagt ttttaaagca gcttccccac ttggaagtcc tgagctatgc 540
ccaagtgtt tacacggtct gagccaggcc atgaaactgc ccagccctgc ccaccacctc 600
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agaaaggatc tagagctgta tatcagcata gcaaaatgcc tcttagaaat gacagatgat 720
gatgccaatc nggatcgccc aggttactaa gagcaacata gaaaaagctg cctttgtcaa 780
actgtactta gtctctcaag gacgattccc cttggtgaa cctgaaccgat atgctgagcg 840
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gaattcatgc ctggtattgc tgagacatga tgcagagagt taagggtcat gaaaagatgg 1560
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```



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gggccagttg agactgaaac aggaacttgg attttcttta tttggcttga gttcaatgtg 1680
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aatgttgtca attttgtgcg tgtgactttt gttttaaggc atgggggaag gtgccagaac 1800
cacttggtga caatggcatt atgatctatt ttccatgaat ctccatgagg atattcattg 1860
actcagttag ttagacaaat ttccttattg ataaaacact ctcttggaac tgctatacac 1920
atttaaataa taagcataac attgaatatt agctaaatca gattcattaa tgggtgtctat 1980
cattttcc                                     1987

```

<210> 307

<211> 785

<212> DNA

<213> Homo sapiens

<400> 307

```

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cctgcgcccc tcaactcctc cgtcccatct gctgctgctg ctgctgctca gtgcggcggc 180
gtgccgggct gaggtctggc tcgaaaccga aagtcccgtc cggaccctcc aagtggagac 240
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acactacacg ggaagcttgg tagatggacg tattattgac acctccctga ccagagaccc 360
tctggttata gaacttggcc aaaagcaggt gattccaggt ctggagcaga gtcttctcga 420
catgtgtgtg ggagagaagc gaagggcaat cattccttct cacttggcct atggaaaacg 480
gggatttcca ccatctgtcc cagcggatgc agtgggtgag tatgacgtgg agctgattgc 540
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ggccatgggt ccagccctcc tgggcctcat tgggtatcac ctatacagaa aggccaatag 660
acccaaagtc tccaaaaaga agctcaagga agagaaacga aacaagagca aaaagaaata 720
ataaataata aatttttaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 780
aaaaa                                           785

```

<210> 308

<211> 2178

<212> DNA

<213> Homo sapiens

<400> 308

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aagcatggac cacatccaag ctgagctgtc rgctagagtc atggagctgg cccagctgg 180
gatgccacc cagcagcagg tcccctttct gtctgtgggt ggggacattg ggtccggac 240
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ggatgacaag cgatacttcc gtcgactgat cttcctcagc aacaggaatg tgggtgcagtc 360
cgaagccagg ttgtgaagg atgtgtctca caaagccag aagaagcggg aaaaggacag 420
gaagaagcag cggcctgctg atgcggagga cctccctgca gccccggggc agtccattga 480
taagagttac ctgtgttgtg aacaccacaa agccatgac gctggccttg ccctgctgag 540
aaaccagag ctactcctag agatccact ggcattgttg gtggtaggcc tgggcggggg 600
cagcctcccc ctctttgtcc acgatcattt tccaaagtcc tgcattgatg ctgtggagat 660
cgatccctcc atgttggaag tggccaccca gtggtttggc ttctcccaga gtgaccgaat 720
gaaggtccac attgcagatg gcctggacta tatcgccagc ttggcaggag gaggagaagc 780
acggccttgc tacgatgtca taatgtttga tgttgacagt aaggacccaa cactgggaat 840
gagttgtccg ccccaagcat ttgtggagca atcttttcta cagaagggtta aaagcatctt 900
gactcctgaa ggtgttttta ttctcaacct tgtgtgccga gacttggggc taaaagactc 960

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agtgtggct gggctcaagg cagtgttccc cctcctatat gtccggcgaa ttgaggggtga 1020
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cctagaaaca gccagggctt tggagcggac cctgaggaag cctgggaggg gttgggatga 1140
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gataaaggat acttaagccc aaactatatac taaacccaaa tctcacttgg ctggaaacat 2100
caatcttaac catttattca gaaccattaa accaatgatt ccaaaaaaaa aaaaaaaaaa 2160
aaaaaaaaa aactcgta                                     2178

```

<210> 309

<211> 875

<212> DNA

<213> Homo sapiens

<400> 309

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caagctcctg tggccacctg tgtcccagca gcagtgagtg gagctgctca ggggtgccctc 60
tcctgcygac cagtctctga atgttcaaag atgagggcct ggcttccgtg ctctggcttt 120
gtaacttatac tgggaaggaa agcacatgcc ttcacgggca gggatgttc cttttcttct 180
cggggtgttg acttgcatc ctgtgtgaac tgttccctct gccatgttta ccgtgtgatg 240
ttctgtagtt gaaaaatgta gttgtctgct ggcacagaat ttatctcggt cttttctctc 300
ccttctctcc tccaaatcag tctcttccct tctccactag ataactgtaa aaccttttcc 360
tggggtacat acattcgta aytcttgggc agtggtagac acgagatgac tttctgcagc 420
gtttatcact gttgggtgga gtcacgtccc ttccctccac cgaagtcac aaccagatag 480
ggaagggaat gatgagggcc agaaaacgag ttcaaactct aggtcttgta cacgtatgta 540
agtaaatgtc aataacccaa gcctttgtca tagcagtcac ttggttgact taggatctgg 600
gtctgttgaa ttttgtgctt gggaaatggag ctggaggagag tggggcctgt gtacagcagc 660
tacctctccc aggtcctctc acttgccctgc cccgcgtcct ggttgcatgg ccgcacctgt 720
gtgtgtgcag aggtctgtgt cccatcctct gcacctcctt tccggggggc tggggagccc 780
cacgtgttgc caagatcttg gtgcaataaa atactccggg tttgtgaaaa aaaaaaaaaa 840
aaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa                                     875

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<210> 310

<211> 756

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (613)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (638)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (684)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (756)
 <223> n equals a,t,g, or c

<400> 310
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 cacgcgtccg ggcccgtggc gccgacagga tgggcaagtg tcgtggactt cgtactgcta 120
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 atttgggcac agccctaaag gcccaaccctt ttggaggtgc ttctcatgca aaaggaatcg 240
 tgctggaaaa agtaggagtt gaagccaaac agccaaattc tgccattagg aagtgtgtaa 300
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<210> 311
 <211> 851
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (834)
 <223> n equals a,t,g, or c

<400> 311
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 tgggaaaggc ttttcaagta tgctagaata ttgcaagcat ttaaattcac atttatctga 420

```

agggatttat ttatgtcaat attgtgaata ttcaacagga caaattgaag atcttaaaat 480
tcacttagat ttcaagcatt cagctgactt gcctcataaa tgtagtgact gcttgatgag 540
gtttggaaat gaaaggaat taataagtca ccttcagtc catgagacaa cttgattatt 600
ctctttaact tacagaatgt tagtttaaaa taataaattc atcctttttt tggagatgat 660
taaatggatg attgtaaaca caacttatga aatctgcctt taacaagtaa cttttttaaa 720
ttataaaatt ttattggcat tgctccattt tctgtatata aatataatctt taatgtggta 780
ttttcaaaaa aaaaaaaaaa aaaaaaatcc acgcggccgc gaattcccgc gtcnaacaag 840
ctcactaatc c 851

```

<210> 312

<211> 1335

<212> DNA

<213> Homo sapiens

<400> 312

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cctcctcttc atcatcgteg tcgtcgtcct cctcctcctc tggctccagt tctagtgact 180
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ggaagaggcg ctttagcagt tccagttcca gctcctcctc ttcattcttc tctcctcct 360
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cctcgtcgtc ttctctccct tccccgtcta agcctggccc tcaggcttgc ccaaacctgc 480
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gcgtggggac agccgctccc ccagccacaa gcgcaggagg gagacaccta gccctcggcc 720
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cccaactttt catgtttctt aaaggcattt tggtttttta aaatctgtac agcaagagca 1260
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aaaaaaaaaa aaaaaa 1335

```

<210> 313

<211> 516

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (505)

<223> n equals a,t,g, or c

<400> 313

```

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```

```

ctgagggagg cgcgagggcg cggagttcca ggtcgagcag ttaggccgcg agcgactgcg 120
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tctgtcccac cagcatcaga ccaggccgca ccgagtcccc ggcaccatgt ttgggaagag 240
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<210> 314

<211> 1833

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (625)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1761)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1766)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1792)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (1806)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1827)

<223> n equals a,t,g, or c

<400> 314

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<210> 315

<211> 1354

<212> DNA

<213> Homo sapiens

<400> 315

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ctgaagccga aaccagctag actttctctc ttcccgcctg cctgtagcgg cgttgttgcc 180
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```

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<210> 316

<211> 2421

<212> DNA

<213> Homo sapiens

<400> 316

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aaagatgagc ttgatgaact caaagaggcc ttgcaaaag ttgatctcaa cagcaacgga 180
ttcatttgtg actatgaact tcatgagctc ttcaagggaag ctaatatgcc attaccagga 240
tataaagtga gagaaattat tcagaaactc atgctggatg gtgacaggaa taaagatggg 300
aaaaaagtt ttgacgaatt tgtttatatt ttcaagagg taaaaagtag tgatattgcc 360
aagaccttcc gcaaagcaat caacaggaaa gaaggtatth gtgctctggg tggaaacttca 420
gagttgtcca gcaagggaac acagcattct tactcagagg aagaaaaata tgctkttgtt 480
aactggataa acaaaagcttt ggaaaatgat cctgattgta gacatgttat accaatgrac 540
cctaaccacc atgacctgtt caaagctgtt ggtgatggaa ttgtgctttg taaaatgatt 600
aacctttcag ttcttgatac cattgatgaa agagcaatca acaagaagaa acttacacc 660
ttcatcattc aggaaaactt gaacttggca ctgaactctg cttctgccat tgggtgtcat 720
gttgtgaaca ttggtgcaga agatttgagg gctgggaaac ctcatctggt tttgggactg 780
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tgctttccat ccagtatgct a

2421

<210> 317

<211> 1092

<212> DNA

<213> Homo sapiens

<400> 317

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aaaaaaaaac gtttctcact gtcttaaata gaatttttaa atagtatata ttcagtggca 120
ttttggagaa caaagtgaat ttacttcgac ttcttaaatt tttgtaaaag actataagtt 180
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ctagaaactg agttgtggag ctgactctaa tcaaatgtga tgattggaat tagaccattt 480
ggcctttgaa ctttcatagg aaaaatgacc caacatttct tagcatgagc tacctcatct 540
ctagaagctg ggatggactt actattcttg tttatatatt agatactgaa aggtgctatg 600
cttctgttat tattccaaga ctggagatag gcagggctaa aaaggtatta ttatttttcc 660
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catttgttgg ctctatttta atttttttct tttaaaataa acagctggga ccatcccaaa 960
agacaagcca tgcatacaac tttggtcatg tatctctgca aagcatcaaa ttaaatgcac 1020
gcttttgtca tgtcaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1080
aaaaaaaaaa ac 1092
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<210> 318

<211> 1380

<212> DNA

<213> Homo sapiens

<400> 318

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tataagtttc cagttgtcat cacaagaagc agtaatgttt atggaccaca tcaatatcca 180
gaaaaggtta ttccaaaatt tatatctttg ctacagcaca acaggaaatg ttgcattcat 240
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tcagttgtcc agcttgccaa agaactaata caactgatca aagagaccaa ttcagagtct 420
gaaatggaaa attgggttga ttatgttaat gatagacca ccaatgacat gagataccca 480
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ataaagaaaa caattgaatg gtacagagag aattttcaca actggaagaa tgtggaaaag 600
gcattagaac cctttccggt ataaccacca tttatatagt cgagacagtt gtcaaagaag 660
aaagttatcc tacctcgcca agtgggtatga aattaagtga ccaaatgaag tgactctttt 720
tcttttgtaa ttagattcat gactttctgt ataaaattca aatgcagaat gcctcaatct 780
ttgggagagt ttcagtactg gcatagaatt taaatgtcaa aattctttct gaaacccttt 840
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gtctcctgat tcggacaacc atgaggggta gtggtgctag ggagaaggca accttactg 960
gttttgaact cagtgccata gaaagtctct gaaatgttcg tttttaggca atataggatg 1020
```



```

tcttaggccc taattcacca tttctttttt aagatctgat atgctatcat tgccttaata 1080
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acgttgaatg ctttttaaga gaagtgtgta aagtttttat attttcacaa ttaacgtatg 1200
taaaccttg tatcagaaat ttatcatgtt tactgtttta aatgattgta tttataaaat 1260
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<210> 319

<211> 2612

<212> DNA

<213> Homo sapiens

<400> 319

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ccataccact atatccatgt gctggaccag aacagcaacg tgtcccgtgt ggaggtcggg 180
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<210> 320

<211> 943

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (52)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (54)

<223> n equals a,t,g, or c

<400> 320

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tggtggagtt cagtccaatt caggtcagcc atatccaaaa gaccacaagt cattactaag 180
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```

<210> 321

<211> 2959

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2948)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2956)

<223> n equals a,t,g, or c

<400> 321

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ttgttttacc aaatgatgga caatgtcacc tggaaaataa tatgtacaca atgagccatt 240
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caatttttgc agttactgaa gaatttcagc ctgtttacia ggagctgaaa aacttgatcc 360
ctaagtcagc agtaggaaca ttatctgcma attctagcaa tgtaattcag ttgatcattg 420
atgcatacaa ttccttttcc tcagaagtca ttttgaaaaa cggcaaatg tcagaaggmg 480
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gaaaatgttc caatatttcc attggagatg aggttcaatt tgaaattagc ataacttcaa 600
ataagtgtcc aaaaaaggat tctgacagct ttaaaattag gcctctgggc tttacggagg 660
aagtagaggt tattcttcag tacatctgtg aatgtgaatg ccaaagcgaa ggcatccctg 720
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<210> 322

<211> 802

<212> DNA

<213> Homo sapiens

<400> 322

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cacaccctcg cwgcyygggg sgcaaccacc ccttccttag gttgatgtgc ttgggaaagc 720
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<210> 323

<211> 1724

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1590)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1650)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1701)

<223> n equals a,t,g, or c

<400> 323

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cgcgtgccgc agaaagatct cagagtaaag aagaacttaa agaaattcag atatgtgaag 180
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aatTTTgcaa acacgaggct gcagtcagtt cggaaggct gtaggaccg cagccagtgc 300
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accaacaaaa aagcagagtc ccgccagccc tcagagaatt ctgtgactga ttccaactcc 420
gattcagaag atgaaagtgg aatgaatttt ttggagaaaa gggctTTaaa tataaagcaa 480
aacaagcaa tgcttgcaaa actcatgtct gaattagaaa gcttccctgg ctcgttccgt 540
ggaagacatc ccctcccagg ctccgactca caatcaagga gaccgcgaag gcgtacattc 600
ccgggtgttg cttccaggag aaaccctgaa cgagagctc gtcctcttac caggtaagg 660
tcccgatcc tcgggtccct tgacgtctc cccatggagg aggaggagga agaggataag 720
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gaatttcaga gaagagccta aatagcaaan ttacacaaa aacgagtatg atttagcact 1680
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<210> 324

<211> 2261

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1098)

<223> n equals a,t,g, or c

<400> 324

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cccagatggt agccaacag gggacgcttt tgctctcttt gcctgtgagg aatatgcaca 60
gaatgcgttg aggaagcata aagacttgtt gggtaaaaga tacattgaac tcttcaggag 120
cacagcagct gaagttcagc agtgctgaa tcgattctcc tcggccctc tcattccact 180
tccaaccctt ccattattc cagtactacc tcagcaattt gtgcccccta caaatgttag 240
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ttgaaagatg tatggtgatc ttgaaacctc cagacacaag aaaacttcta gcaaattcag 780
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<210> 325

<211> 1213

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1213)

<223> n equals a,t,g, or c

<400> 325

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actccttggt gcctgcctga tctccaaat caccacagga ctattcctag ccatgacta 180
ctcaccagac gcctcaaccg ccttttcatc aatcgccac atcactcgag acgtaaatta 240
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cctacacatc gggcgaggcc tatattacgg atcatttctc tactcagaaa cctgaaacat 360
cggcattatc ctctgcttg caactatagc aacagccttc ataggctatg tctcccggtg 420
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cacacgattc ttacctttc acttcatctt gcccttcatt attgcagccc tagcagcact 600
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ttatacccta gccaacccct taacacccc tccccacatc aagcccgaat gatatttcct 840
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271

actatccatc ctcatcctag caataatccc catcctccat atatccaaac aacaaagcat 960
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cgtactatac ttcacaacaa tcctaatacct aataccaact atctccctaa tkgaaaacaa 1140
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<210> 326

<211> 2764

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (372)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2128)

<223> n equals a,t,g, or c

<400> 326

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gggc 2764
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<210> 327

<211> 1764

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1398)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1758)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1759)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1762)

<223> n equals a,t,g, or c

<400> 327

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gctgtgaccg ctgtgaagaa tggtttcatg gcgattgtgt gggcatttct gaggtctgag 180
ggaggctttt ggaaaggaat ggggaagact atatctgccc aaactgcacc attctgcaag 240
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atgctgatgg caccgattgt acaagtatag gaacaataga gcagaagtct agcgaagacc 360
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ctttaaaaaa aaaaaaannt cnaa 1764

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<210> 328

<211> 571

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (7)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (535)

<223> n equals a,t,g, or c

<400> 328

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ggccgcacac aggtggtctt tactccgagc atctgtaaag tgacctgcac caagggcagc 180
tgtcagaaca gctgtgagaa ggggaacacc accactctca ttagtgagaa tggatcatgt 240
gccgacaccc tgacggccac gaacttccga gtggtaatth gccatcttcc atgtatgaat 300
gggtggccagt gcagttcaag ggacaaatgt cagtgccttc caaatttcac agggaaactt 360
gtcagatcc cagtccatgg tgccagcgtg cstaaactth atcagcattc ccagcagcca 420
ggcaaggcat tggggacgca tgtcatccat tcaacacata ccttgctctt gaccgtgact 480
agccagcagg agtcaaagtg aaatttcctc cttaacatag tcaatatcca tgtgnaacat 540

```

cctcctgaag cttccgtcca gatacatcag g

571

<210> 329

<211> 473

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (449)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (467)

<223> n equals a,t,g, or c

<400> 329

cacgtagtaa tctttaaata taaatagcca cgtgtgnact actatcatat gggacagaac 60
agttccagac cacattattg ataagatgtg ttaaaataaa taagatcttt ctgtgaactt 120
ttgggaacca aatggttttg ggcatgattt cccagctcat tatatattga cacagaattt 180
tttcagaatg gcatttacta gtaccccaga aatttagcaa agtatagtta ggtacttatt 240
gtaaaatata ttgcatattt gatttaaggt ttgttatgaa cacactaatc tgatatttta 300
tatttaaac attttcaatk ctgtaagact cagtaagagc tatttaatta tactgwaaca 360
aagaaaatct ataaataaat agcacaataa ggcacatgcg ggtgtataat actgaagtgg 420
tagtttttaa tttccgaaga gaataagcgt ttcaggccca ttagaancac aga 473

<210> 330

<211> 1335

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (865)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1004)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1156)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1301)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1328)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1333)
<223> n equals a,t,g, or c

<400> 330
ggcgctactg aggcgcgga ccggactgcg gttggggcgg gaagagccgg ggccgtggct 60
gacatggagc agccctgctg ctgaggccgc gccctccccg ccctgaggtg ggggcccacc 120
aggatgagca agctgccag ggagctgacc cgagacttg agcgcagctg cctgccgtgg 180
cctccctggg ctccctactg tcccacagcc agagcctctc ctgcacctc cttccgccc 240
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acctgctctt catctccctg ctctggatca tcgaactgaa taccaacaca ggcatccgta 360
agaacttga gcaggagatc atccagtaca actttaaaac ttcttcttc gacatctttg 420
tcctggcctt cttccgcttc tctggactgc tcctaggcta tgcgtgctgc rgctccggca 480
ctggtgggtg attgcggtca cgacgtggt gtccagtga ttctcattg tcaaggteat 540
cctctctgag ctgctcagca aaggggcatt tggctacctg ctccccatcg tctcttttgt 600
cctcgcttg ttggagacct ggttccttga cttcaaagtc ctacccagg aagctgaaga 660
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tgstctgtcc gagggacatt ctattcacc ccagaatcct ttgcagggtc tgacaatgaa 780
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tttgagaaga ataatgaata tggggacacc gtgtacacca ttgaagttcc ctttcacggc 960
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cagcgagtgg aagacaacac cctcatctcc tatgacgtgt ctgcaagggg ctgcggggcg 1140
cgtkgtcttc cccaanggac ttcgtgaatg tccggcgcat tgarcggcgc agggaccgat 1200
acttgttcat cagggatcgc caccttcaca cagtgccaa ccccgacgc acaaatatgt 1260
tccggggaga gaatggcctg ggggtttcat cgtggttcaa ntcggccatt aacccctgt 1320
tttgcacntt gtntg 1335

<210> 331
<211> 1046
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (982)
<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (997)

<223> n equals a,t,g, or c

<400> 331

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attggccttg agacatggtt ttttgtggtt gcagctgcag ctgtccccc gtcttttaac 120
tcgacatcaa aagcctctct cctgccagtg ccatagggtt gttagagcta ctgttttgta 180
acagctgctc aggtgtcccc aaactccttg agttttccac cctgagctgt taaaaacctg 240
ccctgcctgt caccatttc tgtgccacca gcccaccccc tgctccact ctcctccctg 300
ccaccttctg tccctgccat aggaatatgg ggacaccgtg tacaccattg aagttccctt 360
tcacggcaag acgtttatcc tgaagacctt cctgccctgt cctgcggagc tcgtgtacca 420
ggaggtgatc ctgcagcccg agaggatggt gctgtggaac aagacagtga ctgcctgcca 480
gatcctgcag cgagtggaa acaacaccct catctcctat gacgtgtctg caggggctgc 540
ggcgcgctg gtctcccaa gggacttcgt gaatgtccg cgcatgagc ggcgcaggga 600
ccgatacttg tcatcaggga tcgccacct acacagtgc aagcccccga cgcacaaata 660
tgtccgggga gagaatggc ctgggggctt catcgtgctc aagtcggcca gtaacccccg 720
tgtttgacc tttgtctgga ttcttaatac agatctcaag ggccgcctgc cccggtacct 780
catccaccag agcctcgcgg ccaccatgtt tgaatttgcc ttccacctgc gacascgcat 840
cagcgagctg ggggcccggg cgtgactgtg cccctccca cctgcgggc cagggtcctg 900
tcgccaccac ttccagagcc agaaagggtg ccagttgggc tcgactgcc cacatgggac 960
ctggccccag gcwgtmamcc tncamcgagc cagcantcc tgggagttga tga ytgaaca 1020
gstttgggtg gacattggat tcgggg 1046
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<210> 332

<211> 1311

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1280)

<223> n equals a,t,g, or c

<400> 332

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ggcgccacca gcgcgcgcg tctgtgtgga gaagcagggg cwgtgctgc cgctgctgct 60
gcacgaatcg ccgcagcccc cagccttgcg cgtcgtcgt acctcctcgg acaggtgaga 120
agcagcccag aaattttatg aataagcatc agaagccagt gctaacaggc cagcggttca 180
aaactcggaa aagggatgaa aaagagaaat tcgaaccac agtcttcagg gatacacttg 240
tccaggggct taatgaggct ggtgatgacc ttgaagctgt agccaaattt ctggactcta 300
caggctcaag attagattat cgtcgtatg cagacacact cttcgatatc ctggtggctg 360
gcagtatgct tgcccctgga ggaacgcgca tagatgatgg tgacaagacc aagatgacca 420
accactgtgt gttttcagca aatgaagatc atgaaacat ccgaaactat gctcagggtc 480
tcaataaact catcaggaga tataagtatt tggagaaggc atttgaagat gaaatgaaaa 540
agcttctcct cttccttaaa gccttttccg aaacagagca gacaaagtgt gcgatgctgt 600
cggggattct gctgggcaat ggcaccctgc ccgccaccat cctcaccagt ctctcaccg 660
acagcttagt caaagaaggc attgcggcct catttgctgt caagcttttc aaagcatgga 720
tggcagaaaa agatgccaac tctgttacct cgtctttgag aaaagccaac ttagacaaga 780
ggctgcttga actctttcca gttaacagac agagtgtgga tcattttgct aaatacttca 840
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ggaaggaact gcagaaggag ctccaggagc gtctttctca ggaatgcccg atcaaggagg 960
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aaggccagtc agagctgadc ctccctccaga aggttcagga atactgctac gacaacatcc 1200
atttcatgaa agcctttcag aagattgtgc ttccttatac catttcagta ttgcttcttc 1260
gctcagaaca tcagctttan tcgtgccgat tcggcacgag cggcacgagc c 1311
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<210> 333

<211> 1444

<212> DNA

<213> Homo sapiens

<400> 333

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tgtccttggg gctgtaattg gcccagctg agcagggcaa aactgaggt caactacaag 120
ccacagggcc cttccccagc ctccagttcac agctgccctg ttgcaggag ggggtggccc 180
ttctgttggc agaccgagcc tgtgggatat accaaggcag aggagcccat agccatgagg 240
agcctcgggg cctgctctt gctgctgagc gcctgcctgg cggtagagcg tggccctgtg 300
ccaacgccgc cgcacaacat ccaagtgcag gaaaacttca atctctctcg gatctatggg 360
aagtgggtaca acctggccat cggttccacc tgcccctggc tgaagaagat catggacagg 420
atgacagtga gcacgctggt gctgggagag ggcgctacag aggcggagat cagcatgacc 480
agcactcgtt ggcggaaagg tgtctgtgag gagacgtctg gagcttatga gaaaacagat 540
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gtccacacca actatgatga gtatgccatt ttcctgacca agaaattcag ccgccatcat 660
ggaccaccca ttactgcaa gctctacggg cgggcgccc agctgaggga aactctcctg 720
caggacttca gagtgggtgc ccagggtgtg ggcacccctg aggactccat cttcaccatg 780
gctgaccgag gtgaatgtgt ccctggggag caggaaaccag agcccatctt aatcccagga 840
gtccggaggg ctgtgctacc ccaagaagag gaaggatcag ggggtgggca actggtaact 900
gaagtcacca agaaagaaga ttcctgccag ctgggctact cggccgggtc ctgcatggga 960
atgaccagca ggtatttcta taatggtaca tccatggcct gtgagacttt ccagtacggc 1020
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aacgggaaca agttctactc agagaaggag tgcaagagt actgcggtgt cctggtgat 1260
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tgccagtggt ctgtcccggg gtcctgtggc aggcagcgcc aagcaacctg ggtccaaata 1380
aaaactaaat tgtaactcc tgaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1440
aagg 1444
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<210> 334

<211> 1030

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (59)

<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (989)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1006)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1023)
<223> n equals a,t,g, or c

<400> 334
tagaattcgg agaagctgaa gcttagtggt ctaaaccggtg gttgggaagg gggaaggang 60
acctcatgga cgtgcctggg ggtgtggctt ggcttccctt gattttggcc ggtggatgac 120
gctgtcctga ccacaccac tccttgctgc agcctgkag tottccactt tcgccttggg 180
gcctgtcttc gccacactga gcatcctcca gagcctcgtg ccagctgctg gtgcagcctc 240
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ggctggagct ggacagggcc ctgctcccag ctagtgggct gggatggctc gtagactatg 360
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agggcgggct tccagtgggg ggagagcccc tggcaggtga tggcttctct gactggatga 480
ctgagcgagt tgatttcaca gctctcctcc ctctggagcc tcccytacct cccggcacct 540
tcccccaacc tcccccaacc ccacctgacc tggaaagctat ggctccctc ctcaagaagg 600
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cgccactacc accaccacca ctaccaccag cccctccct cccctgtcc ctccctcct 720
ttgacctccc ccagccccct gtcttgata ctctggactt gctggccatc tactgccgca 780
acgaggccgg gcaggaggaa gtggggatgc cgctctgccc cccgccacag cagccccctc 840
ctccttctcc acctcaacct tctgcctgg gccccctacc cacatcctgc caccaccgca 900
ggggaccgca agcaaaagaa gagagaccag aacaagtcgg cggtytgag gtaccgccag 960
cggaaggggg caggaggggt tgagggcynk gggaagggga agttgncagg gggttgggaa 1020
gnaagggaa 1030

<210> 335
<211> 2127
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (72)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2098)
<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (2114)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2117)

<223> n equals a,t,g, or c

<400> 335

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ggatctgagg aaagggaggg cttttctgat ctctcccaat tagaggatta ggcaattggc 60
agcgcagtgc gntaactctg ggcggggctg ggctccaggg ctggacagca cagtccctct 120
gaactgcaca gagacctcgc agccccgaga actgtcgccc ttccacgatg tggctccgtg 180
cctttatcct ggccactctc tctgcttccg cggcttgggc agggcatccg tcctcgccac 240
ctgtggtgga caccgtgcat ggcaaagtgc tggggaagtt cgtcagctta gaaggatttg 300
cacagcctgt ggccattttc ctgggaatcc cttttgccaa gccgcctctt ggacccctga 360
ggtttactcc accgcagcct gcagaacccat ggagctttgt gaagaatgcc acctcgtacc 420
ctcctatgtg cacccaagat cccaaggcgg ggcagttact ctacagagcta ttacaaaacc 480
gaaaggagaa cattcctctc aagctttctg aagactgtct ttacctcaat atttacctc 540
ctgctgactt gaccaagaaa aacaggctgc cggatgatgt gtggatccac ggaggggggc 600
tgatggtggg tgcggcatca acctatgatg ggctggccct tgctgcccac gaaaacgtgg 660
tggtggtgac cattcaatat cgcctgggca tctggggatt cttcagcaca ggggatgaac 720
acagccgggg gaactggggg caccctggacc aggtggctgc cctgcgctgg gtccaggaca 780
acattgccag ctttggaggg aaccagcgt ctgtgacct ctttggagag tcagcgggag 840
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tatctctgga cttacaggga gaccccagag agagtcaacc ccttctgggc actgtgattg 1140
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tcccctacat ggtcgggaatt aacaagcagg agtttggctg gttgattcca atgcagtga 1260
tgagctatcc actctccgaa gggcaactgg accagaagac agccatgtca ctctgtgga 1320
agtcctatcc cttgttttgc attgctaagg aactgattcc agaagccact gagaaaatact 1380
taggaggaac agacgacact gtcaaaaaga aagacctgtt cctggacttg atagcagatg 1440
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cctacatgta tgagtttcag taccgtccaa gcttctcctc agacatgaaa cccaagacgg 1560
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gtgcctcaga agaggagatc agacttagca agatgggtgat gaaattcttg gccactttg 1680
ctcgcaatgg aaaccccaat ggggaagggc tgccccactg gccagagtac aaccagaagg 1740
aagggtatct gcagatttgt gccaacaccc aggcggccca gaagctgaag gacaaagaag 1800
tagctttctg gaccaacctc tttgccaaag aggcagtgga gaagccaccc cagacagaac 1860
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gggtggtggg ggcaggggac agaggccatg aaggagcaag ttttgtattt gtgacctcag 2040
ctttgggaat aaaggatctt ttgaaggcca aaaaaaaaaa aaaagggcgc ctttttangg 2100
gttcccaatt tacnaanggg tgcttgg 2127
```

<210> 336

<211> 847

<212> DNA

<213> Homo sapiens

<220>
<221> misc feature
<222> (291)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (334)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (829)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (847)
<223> n equals a,t,g, or c

<400> 336
ccgccatgcc gttcctggag ctggacacga atttgcccgc caaccgagtg cccgcggggc 60
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tccccactcc tttcctcacg ccaagctctg actttccgtg ctccacgata ccgcggctcc 180
ccctccgcac gtctttccct tgtcgccctc ccagtcattg acccgggcgt gaccttcagg 240
gaccgcggcc cgtatcgagg tccctgcccc gcgaacactg cgcgtttcgg ntttcgcgcg 300
ctcgggtccc gtccccagag gtagcccgcc cggntccaac ttcgggcaaa attttcatgt 360
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tccaccgagc cctgcgcgca gctgtccatc tcctccatcg gcgtagtggg caccgcccag 480
gacaaccgca gccacagcgc ccacttcttt gagtttctca ccaaggagct agccctgggc 540
caggaccgga tacttatccg ctttttcccc ttggagtcct ggcagattgg caagataggg 600
acggtcatga cttttttatg attgggcacg gagggatcca gggcatctgt gaactggctg 660
cttcttccag agagatctct tggcagagtg agggcctgga gataaccagc tttggattat 720
cccgcattga acattcctgt gatcacataa tcctcttctt catcctcata tgaaataaat 780
gaagagagct tcctcattca aaaaaaaaaa aaaaaaaccc cgggggggnc cggtaacca 840
ttggccn 847

<210> 337
<211> 702
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (21)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (150)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (669)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (679)
<223> n equals a,t,g, or c

<400> 337
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ccgcctcttc cgctgcgtgc cggaccatgg cgcaggggca gcgcaagttt caggcgacaca 120
aaccgcgaaa gagtaagacg gcagcggcan cctctgaaaa gaatcggggc ccaagaaaag 180
gcggtcgtgt tatecgtccc argaaggcgc gcgtcgtgca gcagcaaaaag ctcaagaaga 240
acctagaagt cggaatccgg aagaagatcg aacatgacgt ggtgatgaaa gccagcagca 300
gcctgcccga gaagctggca ctgctgaagg cccagccaa gaagaaagg gcagctgccg 360
ccacctctc caagacacct tcctgaggac gctggcccca gtgcaggcca acatcccacc 420
ccctacctc atatgggacc ttgcaagtca tcccacaggc tgcactgtca ggaagaggac 480
cctgtccccc agcactgggc ttcacctaga acttcagtgg gggccaagg tgctgagaac 540
ccagcaatga ccaggaagat acagtcacta acttcactgt tccccgtgcc cttccccagg 600
tcctgcctcc acaggtttaa ccagaacaa taaacctggc ttgtcaama aaaaaaaaaa 660
agggccggnc gttttagang atccagctta cgtaccgtgc tt 702

<210> 338
<211> 875
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (791)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (813)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (830)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (861)
<223> n equals a,t,g, or c

<400> 338

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taagatagca aaccagttcg ttttaagtaa gctaacttgt tcattagtat ctgtggctta 60
aatggcaaaa aaagaaaata tccttgagtt tgtaatctag ttacagaagt aaggcataca 120
cacacacaaa gataacagta cctagagaga gagtgtgtgt gagtgtgcgt gtctctgtgt 180
gtgcacgtgc acgctcatgg ccaaagtgtc gcactctaca taaaggaggc aggagttcct 240
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ttccgcaaca cagaaatgac tcagaatctc agacaaaatg tattatttgt tcaattttaa 360
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ctcacaaaag agaaggcagg aaacgttttg tgagtgccta ttctatgtca aacactgtgt 480
tggcaccata ttttacaagt ttttttcctc ttctcacagt gatcttgtga gttagtact 540
tatattttta ttagaactca ttattctggg taccctcaa tgagaattag agagggttaa 600
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acccatctca ccacactgct ttacagtctt cctgaaggga cattttgagg tggggggggg 720
ccttcaaagc tcagaggact gggtttkgaa tgggtttaat ttttgcaagg gatccatgtc 780
catgccaggg ngtttacaat tctttaactt ccntcccaa ttcgtgtgtg ccattaggga 840
catttgggtt acatccgggc nggggagggt caggg 875

```

<210> 339

<211> 1448

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1427)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1432)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1440)

<223> n equals a,t,g, or c

<400> 339

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tctgttttcc atcccttcca ggtccttcct cgggaggcgg cgaaggcggt ccacctgcg 180
cgtgatcctt yatgccggc ccctgccctt ccctccgggt ggaacttccc cctcaccgcc 240
agacttaagc tgaggatcgt tggatctctg gcggggtgca gaactgagcc caggccacag 300
taccctattc acgctctgtg cttgtgccaa gggggcaatg gcggcttccct gtgttctact 360
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ggtaaaagca gctgttaagt atgcccttag cgtaggctac cgccacattg attgtgctgc 480
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ggcgggtgcct cgggaggagc tgtttgtgac atccaagctg tggaacacca agcaccaccc 600
cgaggatgtg gagcctgccc tccggaagac tctggctgac ctccagctgg agtatctgga 660
cctgtacctg atgactggc ctatgcctt tgagcgggga gacaaccctt tcccaagaa 720
tgctgatggg actatatgct acgactccac ccactacaag gagacttga aggctctgga 780
ggcactggtg gctaaggggc tgggtgcaggc gctgggcctg tccaacttca acagtcggca 840

```

```

gattgatgac atactcagtg tggcctccgt gcgtccagct gtottgcagg tggaatgcc 900
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tgcttatagc cctttgggct cctctgatcg tgcattggcg gatcctgatg agcctgtcct 1020
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gctaaatgcc ctgaacaaaa attggagata tattgtgcct atgcttacgg tggatgggaa 1260
gagagtccca agggatgcag ggcatcctct gtaccccttt aatgaccctg actgagacca 1320
cagcttcttg gcctcccttc cagctctgca gctaattgagg tcctgccaca acggaaagag 1380
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caagggaa 1448

```

<210> 340

<211> 843

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (812)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (822)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (829)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (838)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (841)

<223> n equals a,t,g, or c

<400> 340

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tgctcttaa gcaagagatt cattgcagct cagcatggct cagaccagct catacttcat 120
gctgatctcc tgcctgatgt ttctgtctca gagccaaggc caagaggccc agacagagtt 180
gccccaggcc cggatcagct gccagaagg caccaatgcc tatcgctcct actgtacta 240
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gggcaacctg gtgtctgtgc tcaccaggc cgagggtgcc tttgtggcct cactgattaa 360
ggagagtggc actgatgact tcaatgtctg gattggcctc catgacccca aaaagaaccg 420
ccgctggcac tggagcagtg ggtccctggg ctccataaag tcctggggca ttggagcccc 480

```

```
aagcagtgtt aatcctggct actgtgtgag cctgacctca agcacaggat tccagaaatg 540
gaaggatgtg ccttgtgaag acaagttctc ctttgtctgc aagttcaaaa actagaggca 600
gctggaaaat acatgtctag aactgatcca gcaattacaa cggagtcaaa aattaaaccg 660
gaccatctct ccaactcaac tcaacctgga cactctcttc tctgctgagt ttgccttggt 720
aatcttcaat agttttacct accccagtct ttggaaccyt aaataataaa aataaacatg 780
tttccactaa aaaaaaaaaa aaaaaaaamt cncagggggg gnccggtanc caattcgncc 840
naa 843
```

<210> 341

<211> 1293

<212> DNA

<213> Homo sapiens

<400> 341

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acggatatcc tctgttgggg gagaagcaac atttttgtgat ttccaaaaa taaaccatgg 180
aattctatat gatgaagaaa aatataagcc attttcccag gttcctacag gggaagtgtt 240
ctattactcc tgtgaatata attttgtgtc tccttcaaaa tcattttgga ctgcataac 300
atgcacagaa gaaggatggt caccaacacc aaagtgtctc agactgtgtt tctttccttt 360
tgtggaaaaat ggtcattctg aatcttcagg acaaacacat ctggaagggtg atactgtgca 420
aattatttgc aacacaggat acagacttca aaacaatgag aacaacattt catgtgtaga 480
acggggctgg tccaccctc ccaaatgcag gtccactgac acttcctgtg tgaatccgcc 540
cacagtacaa aatgctyata tastgtcgag acagatgagt aaatatccat ctggtgagag 600
agtacgttat saatgtagga gcccttatga aatgtttggg gatgaagaag tgatgtgttt 660
aaatggaaac tggacrgaac cacctcaatg caaagattct acrggaaaat gtgggcccc 720
tccacctatt gacaatgggg acattacttc attcccgttg tcagtatatg ctccagcttc 780
atcagttgag taccaatgcc agaacttgta tcaacttgag ggtaacaagc gaataacatg 840
tagaaatgga caatggtcag aaccaccaa atgcttacat ccgtgtgtaa tatcccgaga 900
aattatggaa aattataaca tagcatthaag gtggacagcc aaacagaagc tttattygag 960
aacagggtgaa tcagytgaat ttgtgtgtaa acggggatat cgtctttcat cacgttctca 1020
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gaatcaatca taaatgcac acctttattc agaactttag tattaatat gttctyaatt 1140
tcatttttwa tgtattgttt tactcctttt tattcatacg taaaattttg gattaatttg 1200
tgaaaatgta attataagct gagaccggtg gctctcttct taaaagcacc atattaaatc 1260
ctggaaaact aaaaaaaaaa aaaaaaaact cgc 1293
```

<210> 342

<211> 1273

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (6)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (483)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1247)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1262)
<223> n equals a,t,g, or c

<400> 342
gcccangcgg ccgcgaggcg ccgccgccgc cgccgcagcc gccggagccg caatgcctaa 60
aggaggaaga aagggaggcc acaaaggccg ggcgaggcag tatacaagcc ctgaggagat 120
cgacgcgcag ctgcaggctg agaagcagaa ggccaggga gaagaggagc aaaaagaagg 180
tgagatggg gctgcagggtg acccaaaaaa ggagaagaaa tctctagact cagatgagag 240
tgaggatgaa gaagatgact accagcaaaa gcgcaaaggc gttgaagggc tcatcgacat 300
cgagaacccc aaccgggtgg cacagacaac caaaaaggtc acacaactgg atctggacgg 360
gccaaggag ctttcgagga gagaacgaga agagattgag aagcagaagg caaaagagcg 420
ttacatgaaa atgcacttgg ccgggaagac agagcaagcc aaggctgacc tggcccggct 480
ggncatcatc cggaacacgc gggaggaggc tgcccgaag aaggaagagg aaaggaaagc 540
aaaagacgat gccacattgt caggaaaacg aatgcagtca ctctccctga ataagtaact 600
gcgacccgtg ggaggagatg ccggggacct ggcccgcgct gccaggacct ctgctgtgtc 660
tcgcccaccc tgtgccctgg cgccgctgca acagcccctc atggccagga gcccccatg 720
gcctggggcc tcctcttcat cttggcacag aaattgtttg ggggatgggg ggggggactg 780
ggggaggggg agctgctatc tttgagacag aaagrkyag aagagctttc atttgtctgg 840
tagatagata gcatgtaagg ggggtggtgt cccaggaggc agctgctgac aggtttgcta 900
cacacagccc cgactgtgtg tgcctgggtg ctcatcaga gaggggctat catctgggag 960
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tgcccathtt cagccctacc cattgatcat ttcaagaaac ctctgtttac tgtgtggcac 1140
ccaggcaaaa catgtccac aaattcaact tgtatatattg gcagattaaa cttgacatta 1200
tcgtaaaaaa aaaaaaaaaa atttgggggg gggcccgta cccattnggg cccttagggg 1260
gnngtttaaa tta 1273

<210> 343
<211> 1793
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1251)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1267)
<223> n equals a,t,g, or c

<400> 343

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gactacagcg atgatgggtg ggtgaatttg aaccggcaag gcttcagcta ccagtgtccc 180
caggggcagg tgatagtggc cgtgaggagc atcttcagca agaaggagg ttctgacaga 240
caatggaact acgcctgcat gccacacca cagagcctcg gggaaccac ggagtgtctg 300
tgggaggaga tcaacagggc tggcatggaa tggtagcaga cgtgctcaa caatgggctg 360
gtggcaggat tccagagccg ctacttcgag tcagtgtctg atcgggagtg gcagttttac 420
tgttgtcgct acagcaagag gtgccatat tcctgctggc taacaacaga atatccaggt 480
cactatggtg aggaaatgga catgatttcc tacaattatg attactatat ccaggagca 540
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tgggcctttc tgactagtat cacacttcta ataaaatcca caattaaacc atgtttctca 840
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tgaaatgggg aaatggaagg gtttgaggc agagctgaaa acagggttg naagggtatt 1260
cctgaantta raagacaaac gttagcatac ccagtaagga aaatgagtgc aggggccagg 1320
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cagacaccct ggaaccctgg ggagctactg gcaaaactct ctggattggg cctgattttt 1560
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ctgcagagat ggcgctatct ttcctcctcc tgtgatgtcc tgctcccaac catttgtact 1680
cttcattaca aaagaaataa aaatattaac gttcamwawg ctgaaaaaaaa aaaaaaaaaa 1740
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1793
```

<210> 344

<211> 1672

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (95)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1667)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1668)

<223> n equals a,t,g, or c

<400> 344

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aagtctaagc gccggaagtg gtgggcattc tgggtaacga gctatttact tcctgcgggt 180
gcacaggctg tggctcgtcta tctccctggt gttcttccca tcggcgaaaga tggccctgga 240
gacggtgccg aaggacctgc ggcatctgcg ggccctgttg ctgtgttcgc tggccaagac 300
tatagaccag tttgaatatg atggttgtga caattgtgat gcatatctac aaatgaaggg 360
taaccgagag atggtatatg actgcactag ctcttccttt gatggaatca ttgcgatgat 420
gagtccagag gacagctggg tctccaagtg gcagcgagtc agtaacttta agccagggtg 480
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aggagtggcc tacaaatcca gagacacagc tataaagacc tagcaagatg caaggctgcc 600
agcatctttg ctctccacct cctgcctctg cttattttct gttctggaac taaatgaaca 660
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ggattaacag atggaattga ggagagagta ggatgctgat tttcctaccc gtggcccagg 840
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aagttctgaa ggccatgaca cctgccttgc ctccctcttc cattctctta ggcacagtaa 960
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tgctgttta cctcaggatt gttgtgattg tagaaacgaa gctatgtgaa aattatataa 1620
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<210> 345

<211> 2109

<212> DNA

<213> Homo sapiens

<400> 345

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caagacaccc cagaggatct tcagcagtc tacttcccat tctctataga gctttgaagc 180
ttggaaccct tccagggtaa acattttctc ttgtgctgct yaggacatyt ggggcctagc 240
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ccagcggtc ccatgttttt ctgtgtcagg ttattaagta cctagtccct gttttctgtc 360
tctstcctaa gctacctctc tgggtccaca gaagacttgg tagtatagtg agaatggcta 420
tacgtgagta caaacrtgga tttccaagg gcttgggaam tgattcttga gcccagaaga 480
gccamgcctg ctttgaggtc ttttgagtg gagatgcagc cctgggaaat ttggggagtc 540
agcaggccag tgtgaagcwa ttggtcctag gagtatatga gcttgctgtt tctttgatgg 600
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atctatccaa cttctttact gagtgatgta ttccatgggg ttaccttttt cagattattg 720
agttgtctct taagcactaa aactttttta tcatttttta gaaacttttt agattgtatt 780
acaaatttgc cttaacagta attagatgtt gaatataatt ttaacatttt attaatgact 840
tgggtcatca gttaatacca gtactaaaac catacgaatt attggtttat tccagaaaat 900

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attcattctt aagctttaac ttgaaggtat cgtaattgcc ggcatttgat gtttagcaat 2040
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agtctctct                                     2109

```

<210> 346

<211> 1714

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (21)

<223> n equals a,t,g, or c

<400> 346

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gatttcattc tctacattta aaggacatcc tttctgagct gctgtgaata aatttggaa 120
ggtagctgtat attttcatct aatggagaac tagctgtact ttgaataagg attgctgcac 180
tggacgactt tagaacatcc ctcacaatgt cgtcaaccgc gagccagaac ccccacggcc 240
tgaagcagat tggcctggac cagatctggg acgacctcag agccggcatc cagcaggtgt 300
acacacggca gagcatggcc aagtccagat atatggagct ctacactcat gtttataact 360
actgtactag tgttcaccag tcaaaccaag cacaggagagc tggagttcct ccttctaagt 420
cgaaaaaggg gcagacacct ggaggagctc agtttgttgg cctggaatta tataaacgac 480
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atgagagtgt actgaaatc tacactcaac aatgggaaga ttatcgattt tcaagcaaag 600
tgctgaatgg aatttgtgcc tacctcaata gacattgggt tcgccgtgaa tgtgacgaag 660
gacgaaaagg aatatatgaa atctattcgc ttgcattggg gacttggaga gactgtctgt 720
tcaggccact gaataaacag gtaacaaatg ctgtttttaa gctgattgaa aaggaaagga 780
atggtgaaac catcaataca agattgatta gtggagttgt acagtcttac gtggaattgg 840
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aacaagtcct cattgaaaa cacttggaac tttccacac agaatttcag aattttattgg 1140
atgctgacaa aaatgaagat ttgggacgca tgtataatct tgtatctaga atccaggatg 1200
gcctaggaga attgaaaaaa ctggttgaga cacacattca taatcagggt cttgcagcca 1260
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<223> n equals a,t,g, or c

<400> 347

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290

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 <211> 1483
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 <213> Homo sapiens

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 <222> (19)
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 <211> 1842
 <212> DNA
 <213> Homo sapiens

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<211> 3008

<212> DNA

<213> Homo sapiens

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<220>

<221> misc feature

<222> (59)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (65)

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<220>

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<222> (1307)

<223> n equals a,t,g, or c

<400> 350

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<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2540)
<223> n equals a,t,g, or c

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<212> DNA

<213> Homo sapiens

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<211> 1637

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (738)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (771)

<223> n equals a,t,g, or c

<400> 353

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gccgcgtgag gacgcagcgt cactgacctg gggagtcgcg attcgtgccg gccggtcctg 60
gttctccggt cccgcgcgtc ccgcagcagc catgtcgttc ttcccggagc tttactttaa 120
cgtggacaat ggctacttgg agggactggg gcgcggcctg aaggccgggg tgctcagcca 180
ggccgactac ctcaacctgg tgcagtgcga gacgctagag gacttgaaac tgcacttgca 240
gagcactgat tatggtaact tcctggccaa cgaggcatca cctctgacgg tgctcagtc 300
cgatgaccgg ctcaaggaga agatgggtgg ggagttccgc cacatgagga accatgccta 360
tgagccactc gccagcttcc tagacttcat tacttacagt tacatgatcg acaacgtgat 420
cctgctcatc acaggcacgc tgcaccagcg ctccatcgct gagctcgtgc ccaagtgcc 480
cccactaggc agcttcgagc agatggaggc cgtgaacatt gctcagacac ctgctgagct 540
ctacaatgcc attctggtgg acacgcctct tgcggctttt ttccaggact gcatttcaga 600
gcaggacctt gacgagatga acatcgagat catccgcaac accctctaca aggcctacct 660
ggagtccctt tacaagttct gcaccctact gggcgggact acggctgatg ccatgtgccc 720
catcctggag tttscangc agaccgtgcc aagctctttc cactactgtg ncggtcttac 780
cctgagggcc tggcgcastg gctcgggctg acgactatga acaggtcaag aacgtggccg 840
attactaccc ggagtacaag ctgctcttcg aggggtgcagg tagcaacctt ggagacaaga 900
cgctggagga ccgattcttt gagcacgagg taaagctgaa caagttggcc ttctgaacc 960
agttccactt tgggtgtctt tatgccttcg tgaagctcaa ggagcaggag tgtcgcaaca 1020
tcgtgtggat cgtgtaatgt atcgccagc gccaccgcgc caaaatcgac aactacatcc 1080
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cctgtccggg gtgtagtacg ctgtcctagc ggctgccag ttctcctgac cctcttagag 1260
actgttctta ggccgtgaaa ggggctgggc accccccccc accaaggatg gacgaagacc 1320
ccctccagag caaggaggcc ccctcagccc tgtggttaca gccgctgatg tatctaagaa 1380

```

```

gcatgtcact ttcattgttcc tccctaactc cctgacctga gaaccctggg gcctgggggc 1440
agtttgagcc tcctctccct tctgtgggtc gctcccagag ccatggccca tgggaaggac 1500
agagtgtgtg tgtccttggg gcctgggggg atgttgctcc tcagctccct ccctcagccc 1560
tgcccctctg agacaataaa actgcccctc ctaaggccaa aaaaaaaaaa aaaaaaaaaa 1620
aaaaaaaaaa aaaaaaa                                     1637

```

<210> 354

<211> 1119

<212> DNA

<213> Homo sapiens

<400> 354

```

cggcagcagc ccgcgccccg cgaggtccg gggctctggg cttccgcctt cttgctgccc 60
tcgttcttgc crgggcccgc gttagtccct gctggccacc ccaactgcgac catgttcggt 120
ccctgcgggg agtcggcccc cgaccttgcc ggcttcaccc tcctaattgcc agcagtatct 180
gttggaatg ttggccagct tgcaatggat ctgattatct ctacactgaa tatgtctaag 240
attggttact tctataccga ttgtcttgtg ccaatgggtg gaaacaatcc atatgcgacc 300
acagaaggaa attcaacaga acttagcata aatgctgaag tgtattcatt gccttcaaga 360
aagctgggtg ctctacagtt aagatccatt tttattaagt ataaatcaaa gccattctgt 420
gaaaaactgc tttcctgggt gaaaagcagt ggctgtgcca gagtcatgtg tctttcrage 480
agtcattcat atcagcgtaa tgatctgcag cttcgtagta ctcccttcgc gtacctactt 540
acaccttcca tgcaaaaaag tgttcaaaat aaaataaaga gccttaactg ggaagaaatg 600
gaaaaaagcc ggtgcattcc tgaaatagat gattccgagt tttgtatccg cattccggga 660
ggaggtatca caaaaacact ctatgatgaa agctgttcta aagaaatcca aatggcagtt 720
ctgctgaaat ttgtttcaga aggggacaac atcccagatg cattaggtct tgttgagtat 780
cttaatgagt ggcttcagat actcaaacca cttagcgatg accccacagt atctgcctca 840
cgggtgaaaa taccaagtgc ttggagatta ctctttggca gtggtcttcc ccctgcactt 900
ttctgatcta atttctgttt tataccttat acccaaaaaca cttactacca acacagctgt 960
taaacattct atacaaaaaa attgtatgat ctggtattag gaaattactt tcacagtaaa 1020
tatcaaagaa aaaagattaa rgtctcttt gccatgcttt tcatcatatg caccaaattg 1080
aaatthttgta cctcggccgc gaccacgcta agccgaatt 1119

```

<210> 355

<211> 738

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (654)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (689)

<223> n equals a,t,g, or c

<400> 355

```

ggcagcaggg acttgcctgt ggtgcccgc gccgccactg gaaagctgaa atccttcgcc 60
cggaaattca tcaatttgaa tgaattcaca acctatggca gcgargaaag caccaaaccg 120
gcctccgtcc gggccctgct gtttgamatc tccttcctca tgctgtgcca tggggcccag 180

```



```

acctatgggt caraggtgat tctgtccgag tcgcgcacag gagctgaggt gcccttcttc 240
gagacctgga tgcagacctg catgcctgag gagggcaaga tcctgaaccc tgaccacccc 300
tgcttccgcc ccgactccac caaagtggag tccctgggtg ccctgctcaa caactcctcg 360
gagatgaagc tagtgagat gaagtggcat gaggcctgtc tcagcatctc agccgccatc 420
ttggaaatcc tcaatgcctg ggagaatggg gtcctggcct tcgagtccat ccagaaaatc 480
actgataaca tcaaagggaa ggtatgcagt ctggcggtgt gtgctgtggc ttggcttgtg 540
gcccacgtcc ggatgctggg gctggatgag cgtgagaagt cgctgcagat gatccgccag 600
ctggcagggc cactgtttag ygagaacacc ctgcagttct acaatgagag ggtngtgatc 660
atgaactcga tcctgggagc gcatgtgtnc cgacgtgctg cagcagacag ccacgcagga 720
ttcaagtttc cctccaac                                     738

```

<210> 356

<211> 1966

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (56)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (788)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1753)

<223> n equals a,t,g, or c

<400> 356

```

gaactagtct cgagtttttt ctgtctagct ccgaccggct gaggcggcgc ggcagnggag 60
ggacggcagt ctcgcrccgc tactgcagca ctgggggtgtc agttgttggg ccgaccacga 120
acgcttcagt tctgtcttgc aaggatatat aataactgat tgggtgtgcc gtttaataaa 180
agaatatgga aactgaacag ccagaagaaa ccttccctaa cactgaaacc aatggtgaat 240
ttggtaaacg ccctgcagaa gatattggaag aggaacaagc atttaaaaga tctagaaaca 300
ctgatgagat ggttgaatta cgcattctgc ttcagagcaa gaatgctggg gcagtgattg 360
gaaaaggagg caagaatatt aaggctctcc gtacagacta caatgccagt gtttcagtcc 420
cagacagcag tggccccgag cgcataattga gtatcagtgc tgatattgaa acaattggag 480
aaattctgaa gaaaatcatc cctaccttgg aagagggcct gcagttgcc tcacccactg 540
caaccagcca gctcccgtc gaatctgatg ctgtggaatg cttaaattac caacactata 600
aaggaagtga ctttgactgc gagttgaggc tgttgattca tcagagtcta gcaggaggaa 660
ttattggggg caaaggtgct aaaatcaaag aacttcgaga gaacactcaa accaccatca 720
agcttttcca ggaatgctgt cctcattcca ctgacagagt tgttcttatt ggaggaaaac 780
ccgatagngt tgtagagtgc ataaagatca tccttgatct tatatctgag tctcccatca 840
aaggacgtgc acagccttat gatcccaatt ttacgatga aacctatgat tatggtggtt 900
ttacaatgat gtttgatgac cgtcgcggac gcccagtggt atttcccatg cggggaagag 960
gtggttttga cagaatgcct cctggtcggg gtgggcgtcc catgcctcca tctagaagag 1020
attatgatga tatgagccct cgtcgaggac cacctcccc tcctcccgga cgaggcggcc 1080
ggggtggtag cagagctcgg aatcttcctc ttccctccacc accaccacct agagggggag 1140

```

```

acctcatggc ctatgacaga agagggagac ctggagaccg ttacgacggc atggttggtt 1200
tcagtgtctga tgaaacttgg gactctgcaa tagatacatg gagcccatca gaatggcaga 1260
tggtctatga accacagggt gggtccgat atgattattc ctatgcaggg gggtcgtggct 1320
catatgggtga tcttgggtgga cctattatta ctacacaagt aactattccc aaagatttgg 1380
ctggatctat tattggcaaa ggtggtcagc ggattaaaca aatccgtcat gagtctgggag 1440
cttcgatcaa aattgatgag cctttagaag gatccgaaga tcggatcatt accattacag 1500
gaacacagga ccagatacag aatgcacagt atttgctgca gaacagtgtg agcagtwma 1560
gwttagcttt gtgttagctt atacatacta aaacctttaa aaagcttttc ttctcaattg 1620
atTTTTTtct tttagaagcc atggtgtctc aaaccttttg ggacctaaact tctaaacatt 1680
ctaatagttt gccttaattt ttcttctgct ttcttactaa aaacgargac attcaatact 1740
aatcttgcct ggnaggaagc cttgaaccaa gcaaacttct gcatttctct ggtgaaaact 1800
gctgccaaaa ccacttgcta aaaattgtac agagcctgta ggaaaatata gaaggttcca 1860
ttgggatggt ggcctagtgc tgtgtgggaa gacttagtgg attttgtttg tttttagata 1920
actaaatcgg ccaacaaatc accgttctgg cctatgggac cgggcc 1966

```

<210> 357

<211> 1562

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (16)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (18)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (260)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (262)

<223> n equals a,t,g, or c

<400> 357

```

taccgccg cctgcgnac cgggtccgaa ttcccgggtc gaccacgcg tccgcatgaa 60
atggaccaat actggggaat tggcagtctg gccagtggga taaatttggt cacaacagt 120
tttgagggcc cagttcttga tcacaggtat tatgcagtg gatgctcccc gcattacatc 180
ctgaacacga ggttttaggaa gccctacaat gtggaaagct acacgccaca gacccaaggc 240
aaatacgaat tcatattaan anagtatgaa tcatactcag attttgaacg caatgtcaca 300
gagaaaatgg caagcaagtc tggtttcagt tttggtttta aaatacctgg aatatttgaa 360
cttggcatca gtagtcaaag tgatcgaggc aaacactata ttaggagAAC caaacgattc 420
tctcatacta aaagcgtatt tctgcatgca cgctctgacc ttgaagtagc acattacaag 480
ctgaaaccca gaagcctcat gctccattac gagttccttc agagagttaa gcggctgccc 540
ctggagtaca gctacgggga atacagagat ctcttcctgt attttgggac ccactacatc 600

```

```

acagaggctg tgcttggggg catttatgaa tacaccctcg ttatgaacaa agaggccatg 660
gagagaggag attatactct taacaacgtc catgcctgtg ccaaaaatga ttttaaaatt 720
ggtggtgcca ttgaagaggt ctacgtcagt ctgggtgtgt ctgtaggcaa atgcagaggt 780
attctgaatg aaataaaaga cagaaacaag agggacacca tgggtgagga ctggtggtc 840
ctggtacgag gaggggcaag tgagcacatc accaccctgg cataccagga gctgccgacg 900
gcggacctga tgcaggagtg gggagacgct gtgcagtaca acccagccat catcaaagt 960
aagggtggagc ctctgtatga actagtgaaca gccacagatt ttgcctattc cagcacagt 1020
aggcagaaca tgaagcaggc actggaggag ttccagaagg aagttagttc ctgccactgt 1080
gctccctgcc aaggaaatgg agtccctgtc ctgaaaggat cacgtgtgta ctgcatctgt 1140
cctgttggtat cccaaggcct agcctgtgag gtctcctatc ggaagaatac cccattgat 1200
gggaagtgga attgctggtc aaattggtct tcatgctctg gaagacgtaa gacaagacaa 1260
aggcagtgtg acaatccacc tcctcaaaat gggggtagcc cctgttcagg ccctgcttca 1320
gaaacacttg actgctccta gcagatgata cagcagtggg ctacatacaa tgagagccct 1380
gagccctcaa gaactcaygc cagctcagcc ctacaccagt ttccacctgg agttcatgca 1440
agggcaaaaag gcagtgccat gcaagctgtt taaaataaag atgttacctt gtaaaatgca 1500
agttgattta aataaatact aggttaaagg ctttaaaaaa aaaaaaaaaa aaaggggggg 1560
cg                                                    1562

```

<210> 358

<211> 1931

<212> DNA

<213> Homo sapiens

<400> 358

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ctcgggagct cggactccta cgcatacccg ggaagggccg ccgccccgcc cgcggctgct 60
ggccccgggtg acacttccgc ctgctataag agcagcggcc ctcggtgcct ccttcctgac 120
ctcgcacca gctcggagcc cggagcgtgc ctcggcggcc tgcgggtttt caccatggag 180
cagctgagct cagcaaacac ccgcttcgcc ttggacctgt tcctggcggt gagtgagaac 240
aatccggctg gaaacatctt catctctccc ttcagcattt catctgctat ggccatggtt 300
tttctgggga ccagaggtaa cacggcagca cagctgtcca agactttcca tttcaacacg 360
gttgaagagg ttcatccaag attccagagt ctgaatgctg atatcaacaa acgtggagcg 420
tcttatattc tgaacttg ctaaatagatta tatggagaga aaacttacia tttccttcct 480
gagtttcttg tttcgactca gaaaacatat ggtgctgacc tggccagtgt ggattttcag 540
catgcctctg aagatgcaag gaagaccata aaccagtggg tcaaaggaca gacagaagga 600
aaaattccgg aactgttggc ttcgggcatg gttgataaca tgaccaaact tgtgctagta 660
aatgccatct atttcaaggg aaactggaag gataaattca tgaagaagc cacgacgaat 720
gcaccattca gattgaataa gaaagacaga aaaactgtga aaatgatgta tcagaagaaa 780
aaatttgcat atggctacat cgaggacctt aagtgccgtg tgcaggaaact gccttaccac 840
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aatctcgatt tcattgaagt taatgtcagc ttgccaggt tcaaactgga agagagttac 1020
actctcaact ccgacctcgc ccgcctaggt gtgcaggatc tctttaacag tagcaaggct 1080
gatctgtctg gcatgtcagg agccagagat atttttatat caaaaattgt ccacaagtca 1140
tttgtggaag tgaatgaaga gggaacagag gcggcagctg ccacagcagg catcgcaact 1200
ttctgcatgt tgatgcccg aaaaaatttc actgccgacc atccattcct tttctttatt 1260
cggcataatt cctcaggtag catcctattc ttggggagat tttcttcccc ttagaagaaa 1320
gagactgtag caatacaaaa atcaagctta gtgctttatt acctgagttt ttaatatagc 1380
caatatgtct tatacttta ccaataaaac cactgtccag aaacaagtct ttcattttct 1440
ttgtaagttt ggctctgttg gctgtttaca cccatgaatt ttggcatggg tatctatttt 1500
ycttttttac attgaaaaaa atccagtgtg tgcttttgaa tgcataagt aaagaagaag 1560
aaaagaatac atccgatgcy tagattcttg accatgtagt aatctataaa attgctatat 1620

```

```
cctcctgata gccatgggaa aacatgataa gatggtcatt tattttgcag ttagaatttt 1680
ggaagccaca aaatagacag acaccctgac tgttgaaggg aggttttaaaa acagatattc 1740
aattgaaatg taagagagca cccaattga gagcccaggt tacgaagaca agcttgcctc 1800
gcctgacttt tctgtccctt gttctgcagg attagtattc tgttacagac ctctagtttt 1860
tagactcttc aattaaaggg ccaatgggta taacctgcaa aaaaaaaaaa aaaaaaaaaa 1920
aaaaaaaaaa a 1931
```

<210> 359

<211> 869

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (869)

<223> n equals a,t,g, or c

<400> 359

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gctctggcgg gcataccagc gggccctggc cgctcaccgc tggaaagtaç aggttyctgac 60
agctggggccc tgtggtagga ggctggtaca aggttttggg tcggttcac cctggcacca 120
ccaaagtggg tgcactgaag aagatgttgt tggatcaggg gggctttgcc ccgtgttttc 180
taggctgctt tctccactg gtaggggcac ttaatggact gtcagcccag gacaactggc 240
caaaactacag cgggattatc ctgatgccct tatcaccaac tactatctat ggcctgctgt 300
gcakttagcc aacttctacc tggccccct tcattacagg ttggccgttg tccaatgtgt 360
tgctgttatc tggaaactcct acctgtcctg gaaggcacat cggctctaag cctgcctcac 420
tccatcgttt ccaccttgca gtgatgcagc ttgacctgg aacggtcaga caacctctc 480
aaagtgggca taccagtttc cacggggttg gggtgccggt cagagcttaa gaggactagc 540
accctgcaat gccctcttc actctaaaat gtacactgac tgcttttagag cccttgataa 600
tagtcttatt cccaccacat actaggcact ccataaatat ctgttgaacc ttcacgacct 660
tatcaacttt acaccatata cccagcaaat gccactcatc cccactcttc atagacacat 720
ttgttactct aacctgcctt aggtctcttg tagctccagc tcttttagaga ctcccggaac 780
ccttttatatg gtgcctcagt aaatatgtta ttaaatatgt aatccggaaa aaaaaaaaaa 840
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 869
```

<210> 360

<211> 561

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (521)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (525)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (560)

<223> n equals a,t,g, or c

<400> 360

```
ggcacgagag actccagccg ccaggggagc gcggtgccgtt cttgcctctc tggcctgcgc 60
ctcctgagcc gagtagatat cccggagttc cgcgcggcgc cagcccttcc gccacggccg 120
tctctggaga gcagcagcca tggccctacg ctaccctatg gccgtgggcc tcaacaagg 180
ccacaaagtg accaagaacg tgagcaagcc caggcacagc cgacgccgcg ggcgtctgac 240
caaacacacc aagttcgtgc gggacatgat tcgggaggtg tgtggctttg ccccgtagca 300
gcggcgcgcc atggagttag tgaaggtctc caaggacaaa cgggccctca aatttatcaa 360
gaaaaggggtg gggacgcaca tccgcgccaa gaggaagcgg gaggagctga gcaacgtact 420
ggccgccatg aggaaagctg ctgccaaaga agactgagcc cctcccctgc cctctccctg 480
aaataaagaa cagcttgaca gaaaaaaaaa aaaaaaaaaa ntcngggggg ggcccggtag 540
ccattcgccc tawagggggg g 561
```

<210> 361

<211> 1680

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (33)

<223> n equals a,t,g, or c

<400> 361

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gagtttacac tgaccatggt ggaatgttaa ggngaacccc accccttctt acagatgggtg 60
acccagagcc tgctcttggg aacagccaga gtaagattgg aaccagact tgcaagccag 120
cgctgtttgc attaaaaggg tgggtgagtc aggacccctg gctcargagc cgyctctcct 180
aaaagagggt ttcaaggcca aatgggtttg tcaacgggtc tgtctccctt tcttgagat 240
gctcattagc ttatcaaaga ctgagaagtc ccgctgttac agaaataatt tagtttgctg 300
tattaactgc tcctgggcct ggagcagtat tcccacctta agattcccag catccctgtg 360
ctgtcccggc tctcattcat gccgaaggcc caaccattg gctgtgttct gtttgaagat 420
ttggggggcg ccttctcttt cttccccagg gaattctcta gcagaggag gggaccacc 480
ccagtgagga agtagattgc tgcctctagc cagagacctg aactggggaa tttgaacatt 540
cctttacatt gttggagaaa tgaagccaaa gttattcaga tggttttccc aggttaaagg 600
aaagtcacct gcaagagatc ccggcactga tctggagcag ctgacagggt gggctctccct 660
taccaaagag aagaaccact ctctggcgct ggggtgacct gctggctggg cctgtaagg 720
ttccatggtg ctgaggccat ggagattccc agagctggtc acaccgaccg ctctcagggc 780
ccgctgccct gggtggcaa caccattctg gccttggcct gcagaagctt tcagagtctt 840
cactggcagt agggggagat ggggagagga atgatctctg cccagccctt tcctttocaa 900
acattgcaat ggaagagccc agatgggtga agattgattt tgccttaact caagagaatt 960
cctgttctcc ttgtgctatg atttgacac aagattctgg atacctggaa cttagctgtg 1020
tactcctgta ccctaaacag tggatttgag ttccagcgtt tattcttttt tccttttttc 1080
agatcaccat ctaagttaca tctttagctc aggtccatcc ttctcaagat ctcttcttta 1140
gccccccagc ccctggtgct gtctgtggtc aggtgacctt actcaggagc agatatctcc 1200
ttggccgcca tggagcctca tccatccaca cgtgcctgta gcattccaga gctcactgcc 1260
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atgagaagaa cacgtaagac cgccaccaca ctcaccctcc ctcaaggccc tgtgccatag 1380
gggtggccac ccgacctgcc cccagaactt ttggatactg gaggcagttg cataggtctc 1440
cctctctggg caccaggact cagtccagcc caagactact ctgggcagct cccatcccag 1500
```

tctggggcca ttgacagact caggaaagga tttctacagt gttctataaa agccaaaaga 1560
gagagtgggt ttgggaagag tgaggggtgt tggggagagg ggaccgatgt gcctcattgt 1620
ttagtggtga ttacaaatat gcttttctgg ataaagtgtg gttgtttgct cttggaaaaa 1680

<210> 362

<211> 740

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (591)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (709)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (718)

<223> n equals a,t,g, or c

<400> 362

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<210> 363

<211> 1324

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (385)

<223> n equals a,t,g, or c

<400> 363

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<210> 364

<211> 2853

<212> DNA

<213> Homo sapiens

<400> 364

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<211> 1837

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<213> Homo sapiens

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<222> (3)

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<221> misc feature

<222> (136)

<223> n equals a,t,g, or c

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<222> (749)
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<220>
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<222> (1816)
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<223> n equals a,t,g, or c

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<221> misc feature
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<210> 366

<211> 1823

<212> DNA

<213> Homo sapiens

<400> 366

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<210> 367

<211> 898

<212> DNA

<213> Homo sapiens

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<222> (17)

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<210> 368
<211> 1117
<212> DNA
<213> Homo sapiens

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<210> 369

<211> 2226

<212> DNA

<213> Homo sapiens

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<222> (24)

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<221> misc feature

<222> (35)

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<220>

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<222> (36)

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<210> 370

<211> 3636

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1937)

<223> n equals a,t,g, or c

<400> 370

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<210> 371

<211> 4039

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1085)

<223> n equals a,t,g, or c

<400> 371

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<210> 372

<211> 1599

<212> DNA

<213> Homo sapiens

<400> 372

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<210> 373

<211> 464

<212> DNA

<213> Homo sapiens

<400> 373


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<210> 374

<211> 890

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (886)

<223> n equals a,t,g, or c

<400> 374

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<210> 375

<211> 1874

<212> DNA

<213> Homo sapiens

<400> 375

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1874

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<210> 376

<211> 2018

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1997)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2012)

<223> n equals a,t,g, or c

<400> 376

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gtgggtgtcca cggagatgca gagctccgag agtaaggaca cctccttgga gactagacgc 600
cagttagcct tgaaggcatt cactcatagc gcacaatatg atgaagcaat ttcagattat 660

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aaaaaaaaaa aaaaccncgg ggggggcccc gnacccca 2018

```

<210> 377

<211> 818

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (818)

<223> n equals a,t,g, or c

<400> 377

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gggcccgtcat ggccatgaag gggaaagaact gtgtggccat cgctgcagac aggcgcttcg 180
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tgtacatcgg cctggccggg ctgcgcaact acgtccagac agttgcccag cgcctcaagt 300
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aagccatgct gaatgctgtg gaccgggatg cagtgtcagg catgggagtc attgtccaca 660
tcacgagaaa ggacaaaatc accaccagga cactgaaggc ccgaatggac taacctgtt 720
cccagagccc actttttttt ctttttttga aataaaatag cctgtctttc aaaaaaaaaa 780
aaaaaaaaaa accccggggg gggccgggaa ccaaattn 818

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<210> 378

<211> 2565
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (1508)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (2565)
<223> n equals a,t,g, or c

<400> 378
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agacctgaat gggcttgacc atctcacaaac tgctcgcgtg acgaccgcat tcgtggcagg 180
taagaagatt gctgtatcaa ctcaagaaaag cagtaacttc actgtctttg ttttttgaat 240
tgcaacaaca actttgatata caacaatgaa gcaatgatata ctaagaacma aagartatatt 300
gccaacagtc atcataatat caagtgattg tataagcaga aacaagctgt cacagacctg 360
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acacatttat tttactctaa atgatctttt acccctgtta gctaattctt gtgttttctt 1740
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taatattatt gttagctgta agtttttggg aaatactgaa caaattagtc cacaatcaag 2340
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aacaccacaa tctgcagatg ttcaagtccc ttacataaaa tggcatagta tttatatgta 2460
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gtaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaagg ggggn 2565
```

<210> 379

<211> 1680

<212> DNA

<213> Homo sapiens

<400> 379

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aatagttaca cacaagaggg aaactggaag ccaaactactg tacagtattg tgtagaaagt 180
cacctcccta ctctttttat tttacatgag tgctgatgtg ttttggcaga tgagctttca 240
gctgaggcct gatggaaatt gagataacct gcaaagacat aacagtattt atgagtata 300
tcttagttct tgaaattgtg gaatgcatga ttgacaatat atttttaatt tttatttttt 360
caagtaatac cagtactgtt taactatagc cagaactggc taaaattttt atattttcag 420
agttgaagtt ggtgaagaca ttcatgattt aaacaccaga tcctgaaagg gggttaaatct 480
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cagataaata gaagtacagt gaggtctata gccattttat taaaatagct taaaagtgtg 660
taaaaaaatg aatctttgtt attacttaat atgttagtta agaaccctgc aagcttatat 720
ttgctagact tacaaattat tttaaatgca tttatctttt ttgacactat tcagtggaaat 780
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gtttttttaa tgtatttttg ccctgaatta agtggttaatt tgatggaaac tctgctttta 1620
aatcatcat ttactgggtt ctaataaatt aaaaattaaa cttgaaaaaa aaaaaaacga 1680
```

<210> 380

<211> 1267

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (4)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (214)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1165)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1255)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1262)

<223> n equals a,t,g, or c

<400> 380

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aatacatttgt attaatacca aagtgttttg tcattttaag aatctggaat gcttgctgta 120
atgtatatgg ctttactcaa gcaratctca tctcatgaca ggcagccacg tctcaacatg 180
ggtaaggggt gggggtggag gggaatgtgt gcancgtttt tacctaggca ccatcattta 240
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gtcaagattt tacttggcat tgagtagttt ttttcaatag taggtaattc cttagagata 360
cagtatacct ggcaattcac aaatagccat tgaacaaatg tgtgggtttt taaaaattat 420
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tataggttta ttacaagttt tttaggattc ttttgggaa gagtcataat tcttttgaaa 540
ataaccatga atacacttac agttaggatt tgtggttaagg tacctctcaa cattaccaaa 600
atcatttctt tagaggggaag gaataatcat tcaaatgaac tttaaaaaag caaatttcat 660
gcactgatta aaataggatt attttaarta caaaaggcat tttatatgaa ttataaactg 720
aagagcttaa agatagttac aaaatacaaa agttcaacct cttacaataa gctaaacgca 780
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atgatgcagt ttcaagtacc aaaacgttga attgatgatg cagttttcat atatcgagat 900
gttcgctcgt gcagtactgt tgggttaaag acaatttatg tggattttgc atgtaataca 960
cagtgaagaca cagtaatttt atctaaatta cagtgcagtt tagttaatct attaatactg 1020
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anaaatt 1267

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<210> 381

<211> 1031

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1015)

<223> n equals a,t,g, or c

<400> 381

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gccactggaa aacctttcag gccgccccca tcagtgggct ccaaagtaaa tggctgaaaa 120
caaaaatggt tcaacttccta acagttttcc tttttccact gtgtgactga aagctcctat 180
atcattttat atttctgaat ctataaaaca aaacaaacaa gcctgamagt gtctggarga 240
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tacgtaccta aaggcaccca gttcactagt ctgtggggtc ctggagcctg tctcttcttt 360
ctggagggtc aaactgaata gcaataatta cgttaccaa agcatgtgga ggaaaagtga 420
aaccagccac ggagacgctg gcccacgggc tcggcctgcg gtgtggcctg ctttgctcac 480
cagcgtcagc cgctcatttc cttctcatga agtcccatct ggtcatgggg acgagggccg 540
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gggtgggggt tgaaagtgtg tatctttaaa tacatgtaca aatcgttgc aaaagtaacg 960
ttattaaaat agatttatta tccctgaaaa aaaaaaaaaa aaaaaaaaaa aaaaancccg 1020
ggggggggccc c                                     1031
```

<210> 382

<211> 1597

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1577)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1579)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1597)

<223> n equals a,t,g, or c

<400> 382

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gataggcgac acgccgrcgg gcggctgagg cgggaatggc tgctgtactg cagcgcgtcg 120
agcggctgtc caatcgagtc gtgcgtgtgt tgggctgtaa cccgggtccc atgacctcc 180
aaggcaccaa cacctaccta gtggggaccg gccccaggag aatcctcatt gacactggag 240
aaccagcaat tccagaatac atcagctgtt taaagcaggc tctaactgaa ttaaacacag 300
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agagagaaga aattatagga aatggagagc aacaatatgt ttatctgaaa gatggagatg 480
tgattaagac tgagggagcc actctaagag ttctatatac ccctggccac actgatgac 540
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atctattggt tccataactc tgtatcatgt gtattttctt attctgggt accacaaatg 1500
attcatgcaa atgaattttt ggtgattgaa aaatattaaa ttcccaattt aaagtaaaaa 1560
aaaaaaaaa aaaaaangnc cccggggggg ggccggn 1597
```

<210> 383

<211> 175

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (95)

<223> n equals a,t,g, or c

<400> 383

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ccaaacatct actacaaggt atgagggctc ctctnacgtg gctatcctga atccagccct 120
tcttggggtg ctctccagt ttaaattcct ggtttraggg acamctstaa catct 175
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<210> 384

<211> 2171

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2166)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2170)

<223> n equals a,t,g, or c

<400> 384

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cggacttcct gggaaagtgg ggaaggccaa ggggaaaaaa acacaaatgg ctgaagtttt 180
gccttctccg cgtggtcaaa gagtcattcc acgaataacc atagaaatga aagcagaggc 240
agaaaagaaa aataaaaaga aaattaagaa tgaaaatact gaaggaagcc ctcaagaaga 300
tggtgtggaa ctagaaggcc taaaacaaag attagaaaag aaacagaaaa gagaaccagg 360
tacaagaca aagaaacaaa ctacattggc atttaagcca atcaaaaaag gaaagaagag 420
aaatccctgg tctgattcag aatcagatag gagcagtgac gaaagtaatt ttgatgtccc 480
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gggggncccn g 2171
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<210> 385

<211> 2364

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (19)

<223> n equals a,t,g, or c

<400> 385

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```

<210> 386

<211> 2864

<212> DNA

<213> Homo sapiens

<400> 386

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aaacagatcc tctcccgagc taacaccata cccatcattg gttccccctc cagcaagcgg 180
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<210> 387

<211> 2683

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (40)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2649)

<223> n equals a,t,g, or c

<400> 387

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caccaccttc ctctggctt ccagggggca gccagtgga atggaaagaa tgtgggattt 240
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<210> 388

<211> 1446

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (35)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (37)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (57)

<223> n equals a,t,g, or c

<400> 388

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gtgatgaaga agaggaggaa gatgaggaga gctcctcgga gggcttgag gctgaggact 180
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aaaaaa

1446

<210> 389

<211> 723

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (705)

<223> n equals a,t,g, or c

<400> 389

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ygactaaagt tctgtgtgat acgtgtgcct tathtagctc aagacattcc tggagcacct 120
ataaaaactg acttgtaatc caggctatgt ctcttttttag ctctgtaatc tttggcaagg 180
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tataaactca aactaaatca tgaattacag aaaaagtcca ttcttccaaa acttgatgtt 360
accacactta caagtttaaa atatgaagtc gactgtttaa aggattctgc atatattcta 420
gtgtgcacat tcagaaacat ttttcttgga aaaagtaccc aacatttttt ataactgcac 480
atattaattt attgccagaa taaattgcat tgcattgctaa ataaagtcag ataattcaaa 540
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tggttttata tgagggtagg aaatcttaac tgctttgggg ggtattgttt ataggctttt 660
tgttatgggg ccggtagtgt ttaatatagg ggattgcccc tttnaccgt ttggggggccc 720
ggg
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<210> 390

<211> 1046

<212> DNA

<213> Homo sapiens

<400> 390

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gaaccagcca gatgttcggc cccagccccc ttcgccccga gagggccctc tgcctgctgc 120
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acaaaaaaaa aaaaaaaaaa aaaaaa
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1046

327

<210> 391

<211> 699

<212> DNA

<213> Homo sapiens

<400> 391

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aacgttgat ccgaaagagg aaaatggttg gaagtagaat gttcgctgat gacctgcaca 480
accttaataa acgcattccg tatctctaca aacactttaa ccgacatggg aagtttcgat 540
agaagagaaa gctgagaact tcggaaaagg ctcatctgtc accctggaga agggaaactg 600
tacttttccc tgtgaggaaa cggttttgta ttttctctgt aataaaatgg ggcttctttg 660
gaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aagtcgacc 699
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<210> 392

<211> 1545

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (24)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (25)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (54)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (58)

<223> n equals a,t,g, or c

<400> 392

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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 1545
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<210> 393

<211> 749

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (490)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (748)

<223> n equals a,t,g, or c

<400> 393

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gactgcctcg ctgcccacc tcccgctcct tggcctgtcc ccagattcct tccctgggtg 600
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aaaaaaaaaa aaaaaaaaaa aaaaaaana 749
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<210> 394
<211> 611
<212> DNA
<213> Homo sapiens

<400> 394
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aatttaattt cattttttta ttttggtgta caagctgtaa catttcatct ttcaaagtgt 480
aacacgctga tttcctcaaa tagagatacc cctttgagtg ataaatttgc aaaatgctgt 540
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<210> 395
<211> 1856
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (1851)
<223> n equals a,t,g, or c

<400> 395
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<210> 396

<211> 2651

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (45)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (47)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2642)

<223> n equals a,t,g, or c

<400> 396

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<210> 397

<211> 2507

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2489)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2496)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2504)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2505)

<223> n equals a,t,g, or c

<400> 397

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<210> 398

<211> 1273

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature
<222> (1227)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1229)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1252)
<223> n equals a,t,g, or c

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<210> 399
<211> 3774
<212> DNA
<213> Homo sapiens

<400> 399
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<210> 400

<211> 1522

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (479)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1471)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1481)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1487)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1501)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1508)

<223> n equals a,t,g, or c

<400> 400

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<210> 401

<211> 1370

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1223)

<223> n equals a,t,g, or c

<400> 401

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tcgcatctcc tcagccgggt gcctagggga actgtgtgcc tttttgactg aagaggagct 360
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1370

<210> 402

<211> 1412

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (51)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1406)

<223> n equals a,t,g, or c

<400> 402

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<210> 403

<211> 1750

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (40)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (44)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (70)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (107)

<223> n equals a,t,g, or c

<400> 403

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<210> 404

<211> 1339

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (150)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1330)

<223> n equals a,t,g, or c

<400> 404

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<210> 405

<211> 482

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (440)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (469)

<223> n equals a,t,g, or c

<400> 405

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gg
482

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<210> 406

<211> 1413

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (9)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (24)

<223> n equals a,t,g, or c

<400> 406

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<210> 407

<211> 1693

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1548)

<223> n equals a,t,g, or c

<400> 407

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<210> 408

<211> 1342

<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (107)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1332)
<223> n equals a,t,g, or c

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<210> 409
<211> 2417
<212> DNA
<213> Homo sapiens

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<221> misc feature
<222> (107)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (680)

<223> n equals a,t,g, or c

<400> 409

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<210> 410

<211> 1401

<212> DNA

<213> Homo sapiens

<220>

344

<221> misc feature

<222> (1394)

<223> n equals a,t,g, or c

<400> 410

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tgatcccaaa atgcaaaactg acaaacccttt tgaccagacc acaattagtc tgcagatggg 180
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caacaaagtt gcttcccaga aaggaaatgag tgtgtatggg cttgggcggc aagtatatga 360
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aaaaaaaaaa gggnggccgt t 1401
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<210> 411

<211> 3016

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (399)

<223> n equals a,t,g, or c

<400> 411

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aagtattgaa caaaagacgg aagggtgctg gaaaaaacag cagatggctc gagaatacag 480
agagaaaatt gagacggagc taagagatat ctgcaatgat gtactgtctc ttttggaata 540
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<210> 412

<211> 958

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (930)

<223> n equals a,t,g, or c

346

<220>

<221> misc feature

<222> (934)

<223> n equals a,t,g, or c

<400> 412

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aaccaggaaa aactcgccaa actgcaggca caagtgcgca ttgggtggaa aggaactgct 180
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<210> 413

<211> 500

<212> DNA

<213> Homo sapiens

<400> 413

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atgcaaagag gttggatcaa gtttaaatga ctgtgctgcc cctttcacat caaagaacta 180
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atcagagtgc catttttttt tttgttcaaa tgattttaat tattggaatg cacaattttt 420
ttaatatgca aataaaaagt ttaaaaactt aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 480
gcggccgctc gaattaagcc
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500

<210> 414

<211> 3397

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1)

<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (15)
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<220>
<221> misc feature
<222> (24)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3081)
<223> n equals a,t,g, or c

<400> 414

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<210> 415

<211> 2880

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (5)

<223> n equals a,t,g, or c

<400> 415

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<210> 416

<211> 1616

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (12)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1610)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1611)

<223> n equals a,t,g, or c

350

<220>

<221> misc feature

<222> (1616)

<223> n equals a,t,g, or c

<400> 416

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<210> 417

<211> 1815

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (270)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1184)

<223> n equals a,t,g, or c

<400> 417

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<210> 418

<211> 1966

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (15)

<223> n equals a,t,g, or c

<400> 418

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<210> 419

<211> 2852

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2838)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2843)

<223> n equals a,t,g, or c

<400> 419

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<210> 420

<211> 2705

<212> DNA

<213> Homo sapiens

<400> 420

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<210> 421

<211> 1901

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1828)

<223> n equals a,t,g, or c

<400> 421

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<210> 422

<211> 2477

<212> DNA

<213> Homo sapiens

<400> 422

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<210> 423

<211> 777

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (759)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (764)

<223> n equals a,t,g, or c

<400> 423

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<210> 424

<211> 1649

<212> DNA

<213> Homo sapiens

<400> 424

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1649

<210> 425

<211> 1608

<212> DNA

<213> Homo sapiens

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<222> (1598)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1600)
<223> n equals a,t,g, or c

<400> 425
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<210> 426
<211> 1794
<212> DNA
<213> Homo sapiens

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<223> n equals a,t,g, or c

<220>
<221> misc feature

<222> (1790)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1793)

<223> n equals a,t,g, or c

<400> 426

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<210> 427

<211> 770

<212> DNA

<213> Homo sapiens

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<222> (14)

<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (40)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (97)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (618)
<223> n equals a,t,g, or c

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<223> n equals a,t,g, or c

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<222> (484)

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<221> misc feature

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<223> n equals a,t,g, or c

<400> 428

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ggactgtacc tgcacgggg ctgggagagg gagaataagc tgtaccatcg caaaccgctg 180
ccatgaaggg ggtcagtcct acaagattgg tgacacctgg aggagaccac atgagactgg 240
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ggagaagccc taccaaggct ggatgatggt agattgtact tgcctgggag aargcagcgg 420
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<210> 429

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<222> (1347)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1357)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1387)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1415)

<223> n equals a,t,g, or c

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<222> (1454)

<223> n equals a,t,g, or c

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<221> misc feature

<222> (1462)

<223> n equals a,t,g, or c

<400> 429

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<210> 430

<211> 434

<212> DNA

<213> Homo sapiens

<400> 430

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gaatccccag cccggaagct ctcccagtc ttcgcccctc ctgttacggg aggcactgtt 180
gtcaccccca aacagagcct actgacagcc atccacatgg tgctgacaga gcatgaccct 240
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gcgtctggtg tcctgggtga acctcatctg caaktccggg tcaactsatcg agcctcacta 360
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<210> 431

<211> 1823
<212> DNA
<213> Homo sapiens

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<220>
<221> misc feature
<222> (1805)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1815)
<223> n equals a,t,g, or c

<400> 431
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<210> 432
<211> 3391
<212> DNA
<213> Homo sapiens

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<222> (33)
<223> n equals a,t,g, or c

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<222> (68)
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<222> (99)
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<222> (114)
<223> n equals a,t,g, or c

<220>
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<223> n equals a,t,g, or c

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ccaatgttgc caacaatact gggccacatg ctgccagttg ctttggggcc aagaaggcca 480
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<210> 433

<211> 2553

<212> DNA

<213> Homo sapiens

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<221> misc feature

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<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (2516)

<223> n equals a,t,g, or c

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<210> 434

<211> 2532

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (2470)

<223> n equals a,t,g, or c

<400> 434

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agggaccgta ttttatcttc agtggctgcc tgattttacc ccacaatta aagttgaagg 2460
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aaaaaaaaa aa 2532
```

<210> 435

<211> 1822

<212> DNA

<213> Homo sapiens

<400> 435

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ggctacgggg ctcggttttg ctgactgggg agtcggcagg cggcaggaac catgcgaggc 180
cagcggagcc tgctgctggg cccggcccgc ctctgcctcc gcctccttct gctgctgggt 240
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gccttttrage ctgtctactg gctggtagac aacgtgatcc gctgggttg agtgggtgtc 420
gtggtcctgg tgatcgtgct gacaggctcc attgtagcta tcgcctacct gtgtgtcctg 480
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tggaatctga tcctgattgt cttccactac taccaggcca tcaccactcc gcctgggtac 600
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aagccagccc gaacacacca ctgcagcatc tgcaacagg gtgtgctgaa gatggatcac 720
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gcttctcaac agggcaaaga taccaggcct gctgctgagg tcaactgccac ttctcatatg 1740
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tttggggggg ggggccccgt ta 1822
```

<210> 436

<211> 1030

<212> DNA

<213> Homo sapiens

<400> 436

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gagaagctgc tgacccggtt cccacagtgc aataaggccc agatgaccaa cattcttcag 120
cagatcaaga cagcacgtac caccatggca ggcctgacca tggaggaact tatccagttg 180
gttgctgcac gactggcaga acatgagcgg gtggcagcaa gtactcagcc acttggtcgc 240
atccgggcct tgttccctgc tccactggcc caaatcagta cccaatgtt cttgccttct 300
gccaagttt catatcctgg aaggcttcca catgctccag ccacctgtaa gctatgtcta 360
atgtgccaga aactcgtcca gccagtgag ctgcatccaa tggcgtgtac ccatgtattg 420
cacaaggagt gtatcaaatt ctgggcccag accaacacaa atgacacttg tcccttttgt 480
ccaactctta aatgacggac ctgactgggg aggaagaaga agagaaactg atgtgaacag 540
gaagcgcggg ttcaagattt ctaaaactct atatttatac agtgacatat actcatgcca 600
tgtacatttt tattatatag gtaatgtgtg tatagaaagt ctgtattcca atgttcgtaa 660
atgaaactat gtatattatg cagaaacagt ctgttcccc tcactcttga attcctttgg 720
gggatgcaga ttgtaggga gatgatgttt agtttggcct tgaaattatg atatccctgc 780
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cattctgctt tggtttggt cagcctctag tccatttcct taaggctcat gtatgcagat 900
ttaaagcctg gtgtcaccc actgtccaac cagatgcctt gcttaccgaa agcctccaga 960
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aaaaaaaaagt                                     1030
```

<210> 437

<211> 1632

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (14)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1602)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1616)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1617)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1628)

<223> n equals a,t,g, or c

<400> 437

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cgaccaaggg gctgcggctt ctctttgatg gcgatgccca cctcctcatg tccatcccca 120
gcccccttcg tggacggctc tgtggcctct gtgggaactt caatggcaac tggagtgcag 180
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gcttggcaga ggagactgca ccctatgaga gcaacgaggc ctgcgggcag ctccggaacc 360
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gcgtatacga cctgtgcgcg caaaagggtg acaaagcctt cctgtgccgc agcctggcag 480
cctacacggc ggcctgtcag gcagctggcg tggcctgtaa gccctggagg acagacagct 540
tctgcccgct ccattgcccc gccacagacc actactccat ctgcactcgc acctgccagg 600
gatcctgtgc ggctctctcc ggctcaccg gctgcaccac ccgtgtttt gagggctgtg 660
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agcgtgttc ctgttcctca agctctggcc tgacatgcca ggcagctggc tgcccaccag 840
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ctgaagaaga cctggtccct ctggagggtg crgtggctga aggatgcac atgtgctcct 1500
acctgctct accgcttttc tgggtcacag aggccaaatg tgagagcatt gaataaatat 1560
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attcccgntt cc 1632
```

<210> 438

<211> 1016

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (27)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (993)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (994)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (995)

<223> n equals a,t,g, or c

<400> 438

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tactccactg ccctggcagc agcaggtgtg gccaatggag gggggtgctg gccccagga 120
ttcccccagc caaactgtct ttgtcaccac gtggggctca cttttcatcc ttccccaaact 180
tccctagtcc ccgtactagg ttggacagcc cccttcggct acaggaaggc aggaggggtg 240
agtcccttac tccctcttca ctgtggccac agcccccttg ccctccgcct gggatctgag 300
tacatattgt ggtgatggag atgcagtcac ttattgtcca ggtgaggccc aagagccctg 360
tggccgccac ctgaggtggg ctggggctgc tcccctaacc ctactttgct tccgccactc 420
agccatttcc ccctcctcag atggggcacc aataacaagg agctcaccct gcccgctccc 480
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gactaccca gtcccaggga aggtggggcc ctgccctag gatgctgcag cagagtgagc 780
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ggaggggtag ccatgatttg tcccagcctg gggctccctc tctggtttcc tatttgcagt 900
tacttgaata aaaaaaatat ccttttctgg aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 960
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aannnggggg gggccccccc ccccca 1016
```

<210> 439

<211> 594

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (476)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (519)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (530)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (531)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (539)

<223> n equals a,t,g, or c

<400> 439

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atcctgctag acgcgccgcg caccgacgga ggggacatgg gcagagcaat ggtggccagg 120
ctcgggctgg ggctgctgct gctggcactg ctccctacca cgcagattta ttccagtga 180
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aatccaacta atgccaccac caaggyggct ggtggtgccc tgcagtcaac agccagtctc 300
tctgtggtct cactctctct tctgcatctc tactcttaag agactcaggc caagaaacgt 360
cttctaaatt tccccatctt ctaaaaccaa tccaaatggc gtctggaagt ccaatgtggc 420
aaggaaaaac aggtcttcat cgaatctact aattccacac cttttaaaaa tttttnggga 480
acccaacca aagggtaaaa aaaaaaaaaa atttggggnt ttttttgggn naaaggggna 540
aaaaaaattt ttcccccccc ccccaaaaaa aaaaaaaaat tttttttttt tttt 594
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<210> 440

<211> 1580

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (873)

<223> n equals a,t,g, or c

<400> 440

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gcccacgcgt tcgcaaggct gcccacatctg gcgctgatta tcctgctgct gccgccaccg 60
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cccggggcca tgctgcctgc agccacagcc tcctcctggt ggccctcct cactgcctgc 180
gccctgctgc cttttgcccc gggccagacc cccaactaca ccagaccctg gttcctgtgc 240
ggaggggatg tgaaggggga atcaggttac gtggcaagtg aggggttccc caacctctac 300
ccccctaata aggagtgcct ctggaccata acggtccccg agggccagac tgtgtccctc 360
tcattccgag tcttcgacct ggagctgcac ccgcctgcc gctacgatgc tctggaggtc 420
tctgctgggt ctgggacttc cggccagcgg ctcgagcgt tttgtgggac cttccggcct 480
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ggaggacgag gcttcctgct ctggtacagc gggcgggcca cctcgggcac tgagcaccaa 600
ttttgcgggg ggcggctgga gaaggcccag ggaaccctga ccacgcccaa ctggcccag 660
tccgattacc ccccgggcat cagctgttcc tggcacatca tcgcgcccc ggaccagtc 720
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cccaagtccc aacctccgga gaaaacagag gaatctcctt cagccccctga tgcacccacc 1080
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tatctgctga tgggccagggt agaagagaac agaggcccc tccttcctcc agagagcttt 1380
gtggttctcc accggcccaa ccaggaccag atcctcacca acctaagcaa gaggaagtgc 1440
```

373

```

ccctctcaac ctgtgcgggc tgctgcgtcc caggactgag acgcaggcca gccccggccc 1500
ctagccctca ggccctcttt cttatccaaa taaatgtttc ttaatgagga atgggtcaga 1560
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```

<210> 441

<211> 1082

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (136)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (462)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (465)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1074)

<223> n equals a,t,g, or c

<400> 441

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ccggccagtg cccttnagtg agcgctcgca agaggacggc agaggcccg cagctcggag 180
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gagccgctgg ggcgaggacg gcgcgaggct gctgctgctg ccccgggccc gcgcggctgg 360
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caagaccagg gctggaacgc cgagatcacg ctgcagatgg tgcagtacaa gaatcgtag 840
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caacccagc cccaatcaca accccagcct cagccccaac ccaagcctca gcccagcag 1020
ctccamccgt atycgcatyc amatccamat ycamaatctt atccttmatt tggnaaccaa 1080
aa                                                                 1082

```

<210> 442

<211> 1241

<212> DNA

<213> Homo sapiens

<400> 442

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agacgagcgt ggcggccgcg gctgctcggg gcccgcgctg ttgccattg acagcggcgt 60
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ctttcattgt cttttccgcc cgcttcgacg gccctcgsgc ggctgctctt tccgggattt 180
tttatcaagc agaaatgcat cgaacaacga gaatcaagat cactgagcta aatccccacc 240
tgatgtgtgt gctttgtgga ggggtacttca ttgatgccac aaccataata gaatgtctac 300
attccttctg taaaacgtgt attgttcgtt acctggagac cagcaagtat tgtcctatct 360
gtgatgtcca agttcacaa accagaccac tactgaatat aagggtcagat aaaactctcc 420
aagatattgt atacaaatta gttccagggc ttttcaaaaa tgaaatgaag agaagaaggg 480
atthttatgc agctcatcct tctgctgatg ctgccaatgg ctctaataa gatagaggag 540
aggttgcaga tgaagataag agaattataa ctgatgatga gataataagc ttatccattg 600
aattctttga ccagaacaga ttggatcgga aagtaaacaa agacaaagag aaatctaagg 660
aggaggtgaa tgataaaaga tacttacgat gccagcagc aatgactgtg atgacttaa 720
gaaagtttct cagaagtaaa atggacatac ctaatacttt ccagattgat gtcattgatg 780
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cagtaaatgg gtcacagca acttctctct gttgatacct gagactgtta aggaaaaaaa 1200
aaaaaaaaaa accccggccg ctcccacttc agattggtta c 1241
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<210> 443

<211> 968

<212> DNA

<213> Homo sapiens

<400> 443

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agtatthtca gagaaaattg aaggthtttt taaacatcac tggatttctt gattgaggaa 180
acaagttctg aaataatagc acaatthcaa agaagagact ctttgcaaag ttgataacat 240
ttcaaaccct gaaggacagt gacttattat gtwagttcaa tkttgtaagt ycattatgtw 300
agatccttht tthttthcat aatatgtatt cttggctgct atgctgtggt tttcaggaaa 360
tthaattatc ttactgagat gtgaaagcaa aactagtaac agaacttaca tthtattthc 420
tgctthtcta aaccctgca tattctggtg aaacatgtaa aatactthta gtaaaattga 480
acatthttat ttgaatthtt gctgaactga taaagggtgt tatatthttg tttgttkgtt 540
tgtthaatc atgtthgttg ggactgaggt ttaggaagtt tgttactggt taaaaacctc 600
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tthtattcat ttgcattagc aaatattcat gcagcagcag ttgactgaaa atthattctt 780
atgagacgta tagtattcat tthtaaatgc atgattgtac attatgtata gacgacaatg 840
tthttaatth ataaattthc ttctthgtta attgcatggg tthttctgca gcttattgtg 900
aataccttgg ttctgtthca tagaaacatt ttgtatata traatactga aatatcaaaa 960
aaaaaaaaaa 968
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375

<210> 444
<211> 1360
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (114)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (302)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (330)
<223> n equals a,t,g, or c

<400> 444
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cgggaagaga ccgtgaccgc caccgccact tcccaggtag cccagcagcc tccagccgct 180
gccgcccctg gggaacaggc cgtcgcgggc cctgcccctc gactgtcccc agcagtacca 240
gcaaagaccg cccagtgtcc cagcctagcc ttgtggggag caaagaggag ccgccgccgg 300
angaaagtgg cagcggcggc gcaagcgcmn aaggagccac aggaggaaag gagccagcag 360
caggatgata tcgaagagct ggagaccaag gccgtgggaa tgtctaacga tggccgcttt 420
ctcaagtttg acatcgaaat cggcagaggc tcctttaaga cggctacaa aggtctggac 480
actgaaacca ccgtggaagt cgcctggtgt gaactgcagg atcgaaaatt aacaaagtct 540
gagaggcaga gatttaaaaga agaagctgaa atgttaaaag gtcttcagca tcccaatatt 600
gttagatatt atgattcctg ggaatccaca gtaaaaggaa agaagtgcac tgttttggtg 660
actgaactta tgacgtcttg aacacttaaa acgtatctga aaaggtttaa agtgatgaag 720
atcaaagttc taagaagctg gtgccgtcag atccttaaaag gtcttcagtt tcttcatact 780
cgaactccac ctatcattca ccgcgatctt aaatgtgaca acatctttat caccggccct 840
actggctcag tcaagrttgg agacctcggc ctggcaacct tgaagcgggc ttcttttgcc 900
aagagtgtga taggtacccc agagttcatg gcccctgaga tgtatgagga gaaatatgat 960
gaatccggtg acgttttatgc ttttgggatg tgcagtctg agatggctac atctgaatat 1020
ccttactcgg agtgccaaaa tgctgcgcag atctaccgtc gcgtgaccag tggggtgaag 1080
ccagccagtt ttgacaaagt agcaattcct gaagtgaagg aaattattga aggatgcata 1140
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gaggaaacag gagtacgggt agaattagca gaagaagatg atggagaaaa aatagccata 1260
aaattatggc tacgtattga agatattaag aaattaaagg gaaaatacaa agataaaaaa 1320
aaaaaaaaaa aaaaaaaaaa aaaaaacacc caccgtgccg 1360

<210> 445
<211> 1835
<212> DNA
<213> Homo sapiens

<220>

<221> misc feature
<222> (326)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1229)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1738)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1747)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1758)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1801)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1806)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1831)
<223> n equals a,t,g, or c

<400> 445
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agctctttcc caggtgttga ctccagctcc agcttcagct ccagctccag gtcgggctcc 180
agctccagcc gcagcttagg cagcggaggt tctgtgtccc agttgttttc caatttcacc 240
ggctccgtgg atgacctggg gacctgccag tgctctgttt ccctgccaga caccamcttt 300
cccgtggaca gagtggaaacg yttggaatt cacagctcat gttctttctc agaagtttga 360
gaaagaactt tccaaagtga gggaatatgt ccaattaatt agtgtgtatg aaaagaaact 420
gttaaaccta actgtccgaa ttgacatcat ggagaaggat accatttctt aactgaact 480
ggacttcgag ctgatcaagg tagaagtga ggagatggaa aaactgggtca tacagctgaa 540
ggagmstttt ggtggaagct cagaaattgt tgaccagctg gaggtggaga taagaaatat 600
gactctcttg gtagagaagc ttgagacact agacaaaaac aatgtccttg ccattcgccg 660


```

agaaatcgtg gctctgaaga ccaagctgaa agagtgtgag gcctctaaag atcaaaacac 720
ccctgtcgtc caccctcctc ccactccagg gagctgtggg catgggtggg tgggtgwacat 780
cagcaaaccg tctgtggttc agctcaactg gagagggttt tcttatctat atgggtgctt 840
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tacagatggg agactgttg agtattatag actgtacaac acactggatg atttgctatt 960
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caccaacacg attgctgtga ctcaaaactct ccctaagtct gcctataata accgcttttm 1140
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ccacactaga gatctaggac atttgtcttg atttggtgag tctcttggg atcatctngc 1740
ytttcangcg cmttttgnca taaagtcygt cyagggtggg attgtcagag gtctaggggc 1800
ncttgnnggc ctaatggaac ccttctgtga ngaag 1835

```

<210> 446

<211> 1355

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (55)

<223> n equals a,t,g, or c

<400> 446

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agcggagttg gtgggcgcta tgctatcacc cgaggcagag cgagtgcctg ggtaccttgt 120
agaagtggag gagctcgccg aggaggtgct ggcggacaag cggcagattg tggacctgga 180
cactaaaagg aatcagaatc gagagggcct gagggccctg cagaaggatc tcagcctctc 240
tgaagatgtg atggtttgct tcgggaacat gtttatcaag atgcctcacc ctgagacaaa 300
ggaaatgatt gaaaaagatc aagatcatct ggataaagaa atagaaaaac tgcggaagca 360
acttaaagtg aaggtcaacc gcctttttga ggcccaaggc aaaccggagc tgaagggttt 420
taacttgaac cccctcaacc aggatgagct taaagctctc aaggtcatct tgaaaggatg 480
agactcaaga accaagatgg gggaccagca acccccaggg gtcattggagg acccaggacc 540
ctccaacctt gacacctgta aggacaggat ctgccctgta agggccagcc gtcagggaatc 600
tgcccatgaa aacctctttg tagtgcttgg ctactctgtg atggcaggag ggaaccttca 660
gcctgtcttg ctgctggacc tggacaccag ggctcgggtg acacaagatc tattgacggg 720
ccttggtagc caccagtggg tgtgtggggc agtggctgtg ggggtgtaag aatgactgca 780
acaggcactt cccaacaatg gcctgctgtt cacatggacc ctgagcaagg aaggaggag 840
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gaatcttggg gctttgtggc tcaccacagc catctgtggg gcaggcacac acacctcccg 1020
ccagctccaa ttttgcaact tttccctgct tgattccaag agtaggtgct gcctagcagc 1080
ccttcgtggc cactctttac tcaggagggc cttgcagagt cctgcaccag gcctgggtga 1140

```

```

gtggatgcgc ctcttaccat atgacacgtg tcaagatgcc cttccgcccc ctctgaaagt 1200
ggggcccggc cagcactgct cgttactgtc tgccttcagt ggtctgaggt cccagtatga 1260
actgccgtga agtcaaaact cttatgtgtt cattaagggc tcaataaatg ttagctgaat 1320
gaawaaaaaa aaaaaaaaaa amawaaaaaa aaaaaa 1355

```

<210> 447

<211> 375

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (153)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (313)

<223> n equals a,t,g, or c

<400> 447

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tgcctctgtg tgtgtgcaag acagagagat aggctatttg tcaagtcagc tagttgccta 60
ggtatctttg tctcacatct ggctgtttcc tcctagagaa ccatccagtt ggctttccag 120
gtctggaggt gagctaattg atgagtgaat atnagcagtg ggtgttcctc atctctttga 180
ggatttgcct cagagttcac taccaaggga tttctggaac taggwgccat tctttacatc 240
agttcttgag ggttctttga tatcaggggc aaaatgatcc cttctctttt ctttcttata 300
tcctgtgctt tgnctcctgg gtgatttctc ttcaaagtcag ttgtgggagg tgcctaggaa 360
caacgctaac acggg 375

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<210> 448

<211> 1393

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1360)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1383)

<223> n equals a,t,g, or c

<400> 448

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caagaacgag aagaatgatg gtgcttgcta ggggatgtcc tgtctctctg aactttgggg 120
tcctatgcat taaataattt tcctgacgag ctcaagtgtc cctctgtgtc tacaatccct 180
ggcggctggc cttcatccct tgggcaagca ttgcatacag ctcatggccc tccctctacc 240
ataccctcca ccccggttcg cctaagctcc cttctccggg aatttcatca tttcctagaa 300
cagccagaac atttgtggtc tatttctctg ttagtgttta accaaccatc tgttctaaaa 360

```

```

gaagggctga actgatggaa ggaatgctgt tagcctgaga ctcaggaaga caacttctgc 420
agggtcactc cctggcttct ggaggaaaga gaaggagggc agtgctccag tggtagagaa 480
gtgagacata atggaatcag gcttcacctc caaggacacc tatctaagcc attttaaccc 540
tcgggattac ctagaaaaat attacaagtt tggttctagg cactctgcag aaagccagat 600
tcttaagcac cttctgaaaa atcttttcaa gatattctgc ctagacggtg tgaagggaga 660
cctgctgatt gacatcggct ctggccccac tatctatcag ctccctctctg cttgtgaatc 720
ctttaaggag atcgtcgtca ctgactactc agaccagaac ctgcaggagc tggagaagtg 780
gctgaagaaa gagccagagg cctttgactg gtccccagtg gtgacctatg tgtgtgatct 840
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tgcgctcaag agcagctact acatgattgg tgagcagaag ttctccagcc tccccctggg 1140
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gatctcgcaa agttattctt ccaccatggc caacaacgaa ggacttttct ccctgggtggc 1260
gaggaagctg agcagacccc tgtgatgcct gtgacctcaa ttaaagcaat tcctttgacc 1320
tgtcaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1380
aanaaaaaaa aaa 1393

```

<210> 449

<211> 1663

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (57)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (180)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (621)

<223> n equals a,t,g, or c

<400> 449

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aaagaacggg ggtgatgtgg ttccacaata ttacaaggac cccaaaaagc tctgcgnaga 60
ggacttggag aagttggtga ccagggtaaa agtaggcagc gagccagcaa aagactgttt 120
gccagcaaa gacctagagg ccacctcaga ccggtcagag ggcagcagcc gggacgcagn 180
ggtagcgacg agaacgagga gtcgagcgtt gtggattacg tggagggtgac ggtcggggag 240
gaggatgcga tctcagatag atcagatagc tggagtcagg ctgcggcaga aggtgtgtcg 300
gaactggctg aatcagactc cgactgcgtc cctgcagagg ctggccaggc ctagacaggg 360
aagtcgtgta gaactgctgt gctgatcaac gggacgctcc gtctttgaag aaagaagaga 420
tggtctctcc ccagccatgg gccacccttg ccagtractc caagtggaa c tacttagctc 480
gcgtgtgcct ggarggtgcg ggaagtccag cgactctcag acgcacctcc cagaggaccg 540
gtgggaattg ttcatagtgc caaagtccta mtactgcgtt ttcaatgggt ccttgtacat 600
agtttgcctc tctgscctag ncctcacctc ttgctatact ggraccgatt tgtacaatgt 660

```

```

gggaattttg ttaccytttt aatcaagggc aacttccttt tccagcacta ccattgtaag 720
gttktttttca ggagggaggg staaccacct tgcttttctc ttttctcttt ttcttttttt 780
tatttttggt ttattaattt ggggaaaggg gtgttagcat tagtgccatg atatctactg 840
gattttaagt agggagactt tttttttaa ggtaggttga aatttgggag atttctcggc 900
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caattttaga tacctgagtg cactttttca gttagtccta acttttaaaa gaaggaaaac 1440
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ccacactgcc ccccatgtga gtacrcgca caagtcaaac gctaggaagt ttgaataaaa 1560
ccaatttttc taacttggtg ctcatgtgtt gtaactcaat aaagcaaaga ctaaacattt 1620
ttataaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 1663

```

<210> 450

<211> 1380

<212> DNA

<213> Homo sapiens

<400> 450

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gggtcgaccc acgctccgg caccatgcgc gcagcagcca tctccactcc aaagttagac 60
aaaatgccag gaatgttctt ctctgctaac ccaaaggaaat tgaaaggaaac cactcattca 120
cttctagacg acaaaatgca aaaaaggagg ccaaagactt ttggaatgga tatgaaagca 180
tacctgagat ctatgatccc acatctggaa tctggaatga aatcttccaa gtccaaggat 240
gtactttctg ctgctgaagt aatgcaatgg tctcaatctc tggaaaaact tcttgccaac 300
caaactggtc aaaatgtctt tggaagtgtc ctaaagtctg aattcagtga ggagaatatt 360
gagtctggc tggctgtgta agactataag aaaacagagt ctgatctttt gccctgtaaa 420
gcagaagaga tatataaagc atttgtgcat tcagatgctg ctaaacaaat caatattgac 480
ttccgcactc gagaatctac agccaagaag attaaagcac caacccccac gtgttttgat 540
gaagcacaaa aagtcataata tactcttatg gaaaaggact cttatcccag gttcctcaaa 600
tcagatattt acttaaatct tctaaatgac ctgcaggcta atagcctaaa gtgactggtc 660
cctggctgaa gggaattaac agatagtatc aagcgcagaa ggaatgtgcc agtatggctc 720
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cagaatggat taacatgaaa gttatccagg cgcagagttg aagaagcata agcaagacaa 840
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aatatataga agcaatttct gtttacatgt ccttgctact tttaaaaact tgcatttatt 1320
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<210> 451

<211> 926

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (687)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (865)

<223> n equals a,t,g, or c

<400> 451

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gttgcatcctt cttgctgtcc tagaaaaaat gatttcacag ggtaacaata acaaaaatgg 60
aaagaatgag actggtaata acaacaacaa agatggatct aatcataaag ctgaaagtgg 120
agctctaata gaagctgcaa aatcaaagat acatcagtac aaagtacgag cttatatcca 180
aatgaagtct ctgaaagcat gtaaaagga aatcaagtca gtcatgaata cagctggaaa 240
ttccgcaccc tctctctttc ttaaaagcaa ttttgagtac ttaagaggta attatcgaaa 300
agccgtgaag ctattaaata gttcaaacat tgctgagcat ccaggattca tgaaaacagg 360
tgaatgcttg agatgcatgt tctggaataa ccttggttgc atccattttg ccatgagcaa 420
gcacaatttg ggaatattct actttaaaaa ggctctgcaa gagaatgaca atgtctgtgc 480
acagctcagt gcaggtagca ctgatccagg taaaaaat ttcaggagac ccatgtgtac 540
gttactaacc aataagagat atgagttgct gtataactgt ggaattcagc ttcttcacat 600
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tcctgccttc tggctacggc tggctgnaat gctgcattgc tgccaataag gggacttctg 720
aacaagaaac taaaggcctt cccagcaaaa aaggaattgt acagtctatt gttggkcaag 780
gctatcatcg taaaatagtt ttggcatcac agtctataca gaatactgtt tatraatggg 840
ggggcagtc tgggccattc ctgtnagcca gtatgggagt tttgcagccc atatgttctc 900
agaaatgcct ggtttgcctg ttacct 926
```

<210> 452

<211> 1642

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (147)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (150)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1608)

<223> n equals a,t,g, or c

<400> 452

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gagcgcggrg ggatcggcgg ctcgcgggtca ctgggtccctg gctcgggttcc ccgcaccccg 120
gggctcacac ttaccgcgcg ggaggancan cgccgggtg tccaccccca tcctgcgcgc 180
agtctctctg attccctctg ctctgagccg ggagagccga acagctgaag agagtctact 240
gactccccag cccaggtgg gccttggtga catcatgacc agttttgaag atgctgacac 300
agaagagaca gtaactgtc tccagatgac ggtttaccat cctggccagt tgcagtgtgg 360
aatatttcag tcaataagtt ttaacagaga gaaactccct tccagcgaag tggtgaaatt 420
tggccgaaat tccaacatct gtcattatac ttttcaggac aaacagggtt cccgagttca 480
gttttctctg cagctgttta aaaaattcaa cagctcagtt ctctcctttg aaataaaaaa 540
tatgagtaaa aagaccaatc tgatcggtga cagcagagag ctgggctacc taaataaaat 600
ggacctgcca tacaggtgca tggtcagatt cggagagtat cagtttctga tggagaagga 660
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aaaaaaaaaa aaaaaaaaaa aa 1642

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<210> 453

<211> 2254

<212> DNA

<213> Homo sapiens

<400> 453

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gagtttgatt ataaaaaaaa aaaaaaaaaa aaaa 2254

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<210> 454

<211> 1931

<212> DNA

<213> Homo sapiens

<400> 454

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<210> 455

<211> 771

<212> DNA

<213> Homo sapiens

<400> 455

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aatggtatgt gggggaaatg catcccctca gaggactgag gcatagtctc tcattctgcta 660
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aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaagggggg g 771
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<210> 456

<211> 1169

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1164)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1167)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1169)

<223> n equals a,t,g, or c

<400> 456

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<210> 457

<211> 3249

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (3234)

<223> n equals a,t,g, or c

<400> 457

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<210> 458

<211> 1916

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1895)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1902)

<223> n equals a,t,g, or c

<400> 458

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<210> 459

<211> 2773

<212> DNA

<213> Homo sapiens

<400> 459

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cgcgatctag aac 2773

<210> 460

<211> 2031

<212> DNA

<213> Homo sapiens

<400> 460

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tttcttcaat cacatctgaa taaatcactt gaagaaagct tatagcttca ttgcaccatg 180
tgtggcattt gggcgctgtt tggcagtgat gattgccttt ctgttcagtg tctgagtgct 240
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<210> 461
 <211> 1839
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc feature
 <222> (1496)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (1832)
 <223> n equals a,t,g, or c

<220>
 <221> misc feature
 <222> (1839)
 <223> n equals a,t,g, or c

<400> 461

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gcccaggccg agcacgatgc ccctaaaaa gggaggtgat ggaattaaac caccaccaat 180
catttgaaga tttggaacct cactgaaaat tggattgtt ggattgccaa atgttgggaa 240
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cactattgat cctaattgaga gcagagtacc tgtgccagat gaaaggtttg actttctttg 360
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tcaaaagaaa cctgttcgct tctatcatga ttggaatgac aaagagattg aagtgttgaa 780
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tctacagata atgcatgttt tacagtactc cagatgtcta cactcaataa aacatttgac 1740
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<210> 462

<211> 779

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (26)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (731)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (737)

<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (759)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (762)
<223> n equals a,t,g, or c

<400> 462
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gaggcagggg agacaagcca ggcacgatgg ccaccttccc accagcaacc agcgcccccc 180
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catggacact acaccagca atagagacgg gactgcggag gaaggaggac ccaggacagg 480
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aaaaggsqg nccggancca attggcctaa agggggggnt tncaattaat gggccgggt 779

<210> 463
<211> 1717
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (5)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (27)
<223> n equals a,t,g, or c

<400> 463
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gttatattca ttgttggtt acccttatcaa actgtgccat taatcctttc acagacatag 360
gtaagggaaga gaacaaccag tggattcagg ggacaattat ctatctccaa ataataggct 420
tttatttctt gcagctaaact ttttcagtga ttctagcaga tgccatctag tacatccttg 480
atcttgttts tttcgtgaga gatctcgcca tggcagcatc ttgttaagta agtgtaattg 540

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cacatgcaca aaagacttaa ctagctttac atttagcagt cagttgggta gatttaggttt 600
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cgtggattcc atttgaccca gtttactatc agttcagttc aggtagattt ggttcaactt 720
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gctcttgcaa ttattcaaat gacaaattaa atttgctttt gtaataacaa taaaagttgt 1680
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<210> 464

<211> 828

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (787)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (819)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (827)

<223> n equals a,t,g, or c

<400> 464

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gaagccggta cagggtgccct gcggacacgt cttttgctct gcatgcctgc aggaatgtct 180
gaagccgaag aagcctgtct gtgggggtgtg tcgcagcgct ctggcacctg gcgtccgagc 240
cgtggagctc gagcggcaga tcgagagcac agagacttct tgccatggct gccgtaagaa 300
tttcttcctg tccaagatcc ggtccacagt ggctacttgt tccaaatacc agaattacat 360
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ccgttacacc tttccttgct cttactgtcc tgagaagaac tttgatcagg aaggacttgt 480
ggaacactgc aaattattcc atagcacgga taccaaactc gtggtttgtc cgatatgtgc 540

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ctcgatgcc tggggagacc ccaactaccg cagcgccaac ttcagagagc acatccagcg 600
ccggcaccgg ttttcttatg acacttttgt ggattatgat gttgatgaag aggacatgat 660
gaatcagggtg ttgcagcgct ccatcatcga ccagtgcgca gaggccgtgc ttgtatcttg 720
tctcatgtta cagagcttcc attacatatt aaacgtgaaa tctatgaaaa aaaaaaagg 780
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<210> 465

<211> 1173

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (137)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1166)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1168)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (1171)

<223> n equals a,t,g, or c

<400> 465

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atgtggagac cgaagactgg gatgcctgtc ttgagtagac ttggacccaa aaaatcatct 1080
caccttgagc ccacccccac cccattgtct aatctgtaga agctaataaa taatcatccc 1140

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tccttgcccta gcaaaaaaaaa aaaaangngg ngg

1173

<210> 466

<211> 521

<212> DNA

<213> Homo sapiens

<400> 466

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tgctggacat gtcctacgag cagctgatgc agctgtacag tgcgcgccag gcggcggtg 180
aaccggggcc tgcggcggaa gcagcactcc ctgctgaagc gcctgcgcaa ggccaagaag 240
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gagatcaagc ccgagatgat cggccactac ctgggcgagt tctccatcac ctacaagccc 420
gtaaagcatk gccggcccgc catcggggcc acccactset cccgmmtcat ccctctcaag 480
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<210> 467

<211> 1428

<212> DNA

<213> Homo sapiens

<400> 467

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tgagcaccct tacctgaccc catccccga atcccctgag cactgggcca gccctcacc 180
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aatatatata tggagatgct cctccccct gtgaaccccc cagtgcctcc gtgggctgag 840
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gaatagttaa cactcaaaaa aaaaaaaaaa aaaaaacttg agggggggg 1428

<210> 468

<211> 3463

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (1187)

<223> n equals a,t,g, or c

<400> 468

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gccctgccgc gcccctcccg caacctggag gtcaagttca ccaagatatt tatcaacaat 180
gaatggcacg aatccaagag tgggaaaaag tttgctacat gtaacccttc aactcgggag 240
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caggttgcct tccagagggg ctgccatgg cgccgctgg atgccctgag tcgtgggcgg 360
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acgatggata cagggagacc atttcttcat gcttttttca tcgacctgga gggctgtatt 480
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<210> 469

<211> 621

<212> DNA

<213> Homo sapiens

<400> 469

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<210> 470

<211> 1833

<212> DNA

<213> Homo sapiens

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<221> misc feature

<222> (126)

<223> n equals a,t,g, or c

<220>

<221> misc feature

<222> (386)

<223> n equals a,t,g, or c

<220>

<221> misc feature
<222> (524)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1798)
<223> n equals a,t,g, or c

<220>
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<222> (1812)
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<210> 471
<211> 3202
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (4)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3160)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (3180)
<223> n equals a,t,g, or c

<400> 471
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<210> 472

<211> 941

<212> DNA

<213> Homo sapiens

<220>

<221> misc feature

<222> (927)

<223> n equals a,t,g, or c

<400> 472

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<210> 473

<211> 1279

400

<212> DNA
<213> Homo sapiens

<220>
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<222> (1144)
<223> n equals a,t,g, or c

<220>
<221> misc feature
<222> (1273)
<223> n equals a,t,g, or c

<400> 473
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<210> 474
<211> 3209
<212> DNA
<213> Homo sapiens

<220>
<221> misc feature
<222> (427)
<223> n equals a,t,g, or c

<400> 474
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acgcacgggtc gcttcctgga aattggcaaa ttcgacctt ctcagaacca mccgctcggc 180